SUSTAINABLE DEVELOPMENT PRINCIPLES IN A COMMUNITY SETTING: A CASE STUDY OF O.U.R. ECOVILLAGE, BRITISH COLUMBIA, CANADA

A Thesis Submitted to the College of Graduate Studies and Research
in Partial Fulfillment of the Requirements for the
Degree of Masters of Environment and Sustainability
in the School of Environment and Sustainability
University of Saskatchewan
Saskatoon

By

Iryna Zamchevska

PERMISSION TO USE

In presenting this thesis in partial fulfillment of the requirements for a Postgraduate degree from the University of Saskatchewan, I agree that the Libraries of this University may make it freely available for inspection. I further agree that permission for copying of this thesis in any manner, in whole or in part, for scholarly purposes may be granted by the professor or professors who supervised my thesis work or, in their absence, by the Head of the Department or the Dean of the College in which my thesis work was done. It is understood that any copying or publication or use of this thesis or parts thereof for financial gain shall be given to me and to the University of Saskatchewan in any scholarly use which may be made of any material in my thesis.

Requests for permission to copy or to make other uses of materials in this thesis in whole or part should be addressed to:

Executive Director
School of Environment and Sustainability
University of Saskatchewan
Room 323, Kirk Hall
117 Science Place
Saskatoon, Saskatchewan S7N 5C8

ABSTRACT

The purpose of this study is to improve understanding of how (a) principles of sustainable development (SD) have been implemented in an ecovillage setting, as well as (b) to analyze internal and external challenges faced by the ecovillagers in their pursuit of sustainable living. The specific research objectives of this study are these: i) examine the sustainable practices of an ecovillage according to Agenda 21 principles; ii) document key and unique elements of the ecovillage approach to SD; iii) identify challenges faced by O.U.R. Ecovillage residents in SD practices implementation and recognise opportunities to improve the implementation of SD principles in the ecovillage. To meet these objectives the study was carried out in one of the most developed ecovillages in Canada - O.U.R. ecovillage, located in the Cowichan Valley region, British Columbia. Multiple research methods that were used included: interviews, focus group, participant observation, research photography and document analysis. Research findings revealed numerous innovative sustainable practices implemented in the ecovillage. Discussed areas include shelter provision, governance, construction practices, environmental infrastructure, human resource development, planning in disaster prone areas, land-use management as well as energy and transportation systems. Many processes initiated by the ecovillage are only in the experimental stage and require improvement. However, O.U.R. Ecovillage is an important educational center for sustainability due not only to specific practices but also its holistic approach to SD that balances the needs of individuals, community, and the environment.

The research also presents various internal and external challenges that obstruct SD of the community. Main difficulties faced by the community throughout its development are related first to strong individualistic cultural values dominant in western society that contradict many sustainable practices applied in the ecovillage. A second obstacle to SD in the community is posed by the inflexibility of regulatory authorities that greatly complicates implementation of innovative holistic practices. Lessons learned from O.U.R. Ecovillage might assist other groups in Canada and abroad to proceed with local initiatives towards sustainability.

ACKNOWLEDGEMENTS

I would like to thank my supervisor Dr. Aloysius Newenham-Kahindi for supporting and financing this research. Without him this study would have never happened. I am grateful to Dr. Jill Gunn, Dr. Clint Westman and Dr. Maureen Reed for their guidance as my Advisory Committee. My gratitude extends to Dr. Isobel Findlay, my external examiner, for her recommendations and interest.

I would like to express my sincere thanks to O.U.R. Ecovillage residents. I will cherish forever the knowledge and experience acquired during my fieldwork. Thank you for being so welcoming and honest.

I am grateful to everyone who encouraged me throughout my graduate studies. Your support and help was invaluable.

This work is dedicated to my family, whose love and care always encourages me to go further and achieve more. They have supported me in all my endeavours, and without them I would have never come so far. Thank you believing in me.

DEDICATIONS

To my parents, whose love and support give me strength to go after my dreams.

To my siblings, Viktoriya and Yurii, for being my life-long teachers.

To my grandma, Mila, for her prayers.

TABLE OF CONTENTS

Permission to Use i
Abstract ii
Acknowledgements iii
Dedications iii
Table of Contents v
List of Appendices viii
List of Figures viii
List of Tables viii
List of Photos ix
List of Abbreviations ix
CHAPTER 1: Introduction 1
1.0. Introduction 1
1.1. Statement of Research Problem 1
1.2. Research Purpose and Objectives 3
1.3 Study Rationale 4
1.4 Thesis Organization 6
CHAPTER 2: Literature review 8
2.0. Introduction 8
2.1 Sustainable Development 8
2.1.1. Evolution of the Concept 8
2.1.2. Pillars of Sustainable Development 11
2.2. Agenda 21 13
2.3. Sustainable Communities 16
2.3.1. Characteristics of Sustainable Communities 16
2.3.2. Types of Sustainable Communities 18
2.4. Ecovillage as a Model of Sustainable Community Living 21
2.4.1. Emergence of the Ecovillage Movement 21
2.4.2. Underlying Principles of the Ecovillage Concept 23
2.4.3 Previous Research on Ecovillage Communities 25

2.5. Research Gap 27
CHAPTER 3: Research Methods 29
3.0. Introduction 29
3.1. Case Study Methodology 29
3.2. Criteria for the Analysis 30
3.3. Data Collection Methods 31
3.3.1. Document Analysis 32
3.3.2. Participant Observation 33
3.3.3. Interviews 35
3.3.4. Focus Group 36
3.3.5. Research Photography 37
3.4. Approach to Data Analysis 38
3.5. Researcher Positionality and Study Limitations 38
CHAPTER 4: Background of the case study 40
4.0. Introduction 40
4.1. Bioclimatic and Socioeconomic Characteristics of the Region 40
4.2. History of O.U.R. Ecovillage Development 42
4.3. Vision, Mission, and Underlying Principles of O.U.R. Ecovillage 45
4.3.1. Permaculture Principles 51
4.4. Organization of O.U.R. Ecovillage 55
4.5. Governance and Decision-making in the Community 58
4.6. One Day in the Life Of O.U. R. Ecovillage: The Community's Life Through the Eyes of a Researcher. 61
4.7. Summary 71
CHAPTER 5: Results 73
5.0. Introduction 73
5.1. Provision of Adequate Shelter 73
5.2. Human Settlement Management 78
5.3. Sustainable Land-use Planning and Management 80
5.4. Integrated Provision of Environmental Infrastructure 87
5.5. Sustainable Energy and Transport Systems 91
5.6. Human Settlement Planning and Management in Disaster-Prone Areas 93
5.7. Sustainable Construction Industry Activities 95

5.8. Human Resource Development and Capacity-Building for Human Settlement Development 102
Chapter 6: Discussion 107
6.0. Introduction 107
6.1. Discussion of Key Findings Related to Agenda 21 107
6.2. Beyond Agenda 21: Expanding the Frames of Sustainable Development 117
6.2.1. Social Sustainable Development 118
6.2.2. Ecological Sustainable Development 122
6.2.3. Economic Sustainable Development 125
6.2.4. Being the Change: Educational Mission of O.U.R. Ecovillage 126
6.3. Challenges of Sustainable Development in a Community Setting 128
6.3.1. External Challenges 128
6.3.2. Internal Challenges 130
CHAPTER 7: Conclusions and recommendations 133
7.0. Introduction 133
7.1. Addressing the Research Objectives 133
7.1.1. Objective One - Agenda 21 Principles in the Ecovillage Setting 133
7.1.2. Objective Two - Key and Unique Elements of the Ecovillage Approach to SD 134
7.1.3. Objective Three - Challenges and Opportunities to Improve the Implementation of SD Principles in O.U.R. Ecovillage 135
7.2. Research Contributions and Transferability 135
7.3. Recommendations 139
7.3.1. Recommendations for O.U.R. Ecovillage for Improving Its Performance 139
7.3.2. Recommendations to Governments to Assist the Development of Ecovillages 140
7.3.3. Recommendations for Academia to Spread Knowledge about Sustainable Ecovillage Practices 142
7. 4. Concluding Remarks 143
References 145

LIST OF APPENDICES

APPENDIX A: Organizational Chart of O.U.R. Ecovillage on July 20, 2011 159
APPENDIX B: Field Notes Form…….....160
APPENDIX C: Interview Guide ……..…161
APPENDIX D: Fieldwork Schedule…….....164
APPENDIX E: Participant Consent Form for Semi-Structured Interviews……..165
APPENDIX F: Participant Consent Form for a Focus Group…….…..167

LIST OF FIGURES

Figure 1 Research Objectives and Supporting Research Methods..... 32
Figure 2 Map of British Columbia. 41
Figure 3 Rural Residential Comprehensive Development Zoning Plan Of O.U.R. Ecovillage. 81
Figure 4 An Integrated Environmental Infrastructure Model. A Water Purification System on Site. 90

LIST OF TABLES

Table 1 Permaculture Design Principles 54
Table 2 Summary of Key Findings on Agenda 21 Criteria..... 115

LIST OF PHOTOS

Photo 1 The First Residential Building on Site. 74
Photo 2 The Cob Root Cellar 75
Photo 3 A Room For Rent in a Cob House 78
Photo 4 The Organic Garden and a Green House 82
Photo 5 The Water Recycling System on Site 88
Photo 6 The Note On Trash Bins 88
Photo 7 The Solar-Panel System On Site 91
Photo 8 An Example of the Load Bearing and Curvilinear Wall 94
Photo 9 The Cob Wood-Burning Stove 95
Photo 10 The Construction of the Straw Bale Building 98
Photo 11 The First Natural Building on Site 100

LIST OF ABBREVIATIONS

CMHC	Canada Mortgage and Housing Corporation
F.O.G.	Finance, Ownership and Governance
G.M.O.	Genetically Modified Organisms
GEN	Global Ecovillage Network
ICLEI	International Council of Local and Environmental Initiatives
LA21	Local Agenda 21
O.U.R.	One United Resource
PDC	Permaculture Design Certificate
RRCD	Rural Residential Comprehensive Development
SCDC	Sustainable Community Development Cooperative
SD	Sustainable Development
UN	United Nations
UNCED	United Nations Conference on Environment and Development

CHAPTER 1: INTRODUCTION

1.0. Introduction

This chapter discusses the statement of the research problem in relation to the current state of sustainable development (SD) concept and the main challenges that communities are facing with the implementation of SD practices. Further this chapter provides research purpose and underlying objectives of the study. It also elaborates on the role of ecovillages in educating the public about sustainable living. The current chapter concludes with the thesis organization.

1.1. Statement of Research Problem

> By taking a comprehensive look at the interconnections among ecological, economic and equity issues ranging from warming to pollution, health and poverty, we are more likely to seek and implement lasting solutions. (Edwards, 2009, p. 9)

It is hard to deny that humanity is faced with numerous social, economic, and environmental challenges on individual, community, national, and global scales. Recently, it became obvious that solutions to these problems are more complex than was thought previously (Baker, 2004; Kilian, 2009; Ukaga, Maser, & Reichenbach, 2010). Furthermore, numerous studies showed that ecological, social, and economic problems such as pollution, poverty, and inequality are tightly interconnected and cannot be solved in isolation (Berke & Conroy, 2000; Coffman & Umemoto, 2010). This fundamental understanding of modern societal challenges led to the development of a SD concept in the 1980s. It was recognised as an important paradigm due to its holistic nature that focuses on balanced development of social, economic, and environmental aspects of the society (Dale, 2011; Harrington, 2011; Lehtonen, 2004). However, in spite of wide acceptance of the SD theory and its rapid popularisation, it is still far from being completely formed, and, thus, faces a number of unaddressed issues such as the lack of a practical application (Berke & Conroy, 2000) and the deficiency of successful implementation

methods (Carroll, 2010). As a result, in spite of numerous international summits[1] and published guidelines[2], goals of SD remain unclear and unreachable for many countries, cities, and communities that strive to implement them (Brown, Hanson, Liverman, & Merideth, 1987; Carroll, 2010; Dernbach & Bernstein, 2003; Parris, 2003). Some authors argue that not only has no clear progress been made towards SD but also global problems have worsened (Carroll, 2010; Dernbach & Bernstein, 2003; Romano, 2000). Therefore, the acute task today is to find an approach for the successful implementation of SD principles that ensures the lasting result on local, national, and global levels.

Sustainable communities, such as transition towns, cohousing units, and ecovillages, emerged as a result of grassroots initiatives towards more ecologically sound, socially just, and economically viable society. The main goal of a sustainable community is to wisely integrate social, economic and environmental aspects through the 'bottom-up' community-based approach to ensure the well-being and prosperity of its inhabitants (Hempel, 2000; Mapes & Wolch, 2011; Nozick, 1999; Roseland, 2000b). Due to the mandate of these communities, they provide an ideal environment for research on SD application. One concept that is becoming increasingly relevant is the concept of ecovillages. An ecovillage is defined as a full-featured settlement that satisfies basic needs of its members with minimum harm to the environment (Gilman, 1991). Available studies on sustainable communities assume that ecovillages represent model communities where people strive to build their settlement according to SD principles. DiChristina (1996), Trainer (2000), Bernstein (2002), Kasper (2008), Kilian (2009), Carroll (2010) are just some of the authors that describe this type of sustainable community as important educational centers of sustainability.

Ecovillages play an important role as local demonstration and education sites of holistic sustainable living and a bottom-up community-driven approach to SD (Carroll, 2010; R. Jackson & Jackson, 2002; Kasper, 2008; Trainer, 2000). Lessons learned from these demonstration communities can be adopted by individuals, neighbourhoods, and communities and applied on local, national, and global levels (R. Jackson & Jackson, 2002; Trainer, 2000). However, in spite of the fact that ecovillagers are striving to create "a holistic, sustainable culture" (cited in Lockyer,

[1] Such as for example the United Nations Conference on Environment and Development (1992) and World Summit on Sustainable Development (2002)

2 Such as, for example, Brundtland Report (1987) and Agenda 21 (1992)

2008, p. 48), some authors (e.g. Carroll, 2010; Kasper, 2008; Middlemiss & Parrish, 2010; Trainer, 2000) claim that this concept has not been researched in depth. Therefore, because ecovillages are perceived as great educational sites of SD practices, it is important to study them, adopt achievements in the area of SD, and transfer the knowledge to other areas.

1.2. Research Purpose and Objectives

SD was recognised as an important paradigm; however, the question of successful implementation remains critical. Therefore, based on the need to deepen the knowledge on SD implementation, the purpose of this study is to improve understanding of how principles of SD have been implemented in an ecovillage setting, as well as to analyze internal and external challenges faced by ecovillagers in their pursuit of sustainable living. For the purpose of this research, One United Resource (O.U.R.) ecovillage, located on Vancouver Island, British Columbia, was chosen as a suitable representative of a Canadian ecovillage. The example of O.U.R. Ecovillage demonstrates that SD can be successfully implemented only through a holistic model that requires not a the balance of social, environmental, and economic aspects of human activities but also achange in the predominant societal values of modern western culture. These fundamental adjustments are critical for the society to transition to a sustainable lifestyle. The specific research objectives of this study are to:

1. Examine the sustainable practices of an ecovillage according to Agenda 21 principles.
2. Document key and unique elements of the ecovillage approach to SD.
3. Identify challenges faced by O.U.R. Ecovillage residents in SD practices implementation and recognise opportunities to improve the implementation of SD principles in the ecovillage.

Ecovillages act as testing grounds for local experiments, classrooms for spreading the knowledge, and arenas for sharing experiences in the field of SD (Kilian, 2009). Therefore, successful practices learned from ecovillages can be applied through local projects and even cities. Issues discussed in this study might assist groups and local governments in rethinking current policies and overall approach to grassroots initiatives.

1.3 Study Rationale

> The key to a sustainable world order must be the development of many small, highly self-sufficient settlements. (Trainer, 1995, p. 57)

Sustainable development was recognised as an important concept due to its holistic approach (Dale, 2011; Harrington, 2011; Lehtonen, 2004). Even though some authors criticise the concept as vague (Barlett & Chase, 2004) and lacking practical application (Berke & Conroy, 2000), SD remains an important and much needed approach for tackling current social and environmental problems (Singla & Bansal, 2010). However, throughout its twenty-year history SD has not brought expected results (Carroll, 2010). Literature states that the main reason that the SD model has not succeeded is the centralised top-down method of implementation. The prevalent approach is for governments at the national level to provide an overarching policy for SD and drive for implementation at the local level (Carpini, Cook, & Jacobs, 2004; Carroll, 2010; Dernbach & Bernstein, 2003; Kilian, 2009). This 'top-down' approach has been criticized as not only ineffective but also de-motivational for individuals and groups to proceed with local initiatives towards SD (Dernbach & Bernstein, 2003). While the top-down method is the most common practice, a number of studies argue that SD can be ensured only if supported and implemented by local participation through a bottom-up community-based approach (Bridger & Luloff, 2001; Carroll, 2010; Gillis & Vincent, 2000; Heiskanen, Johnson, Robinson, Vadovics, & Saastamoinen, 2010; Nozick, 1999; Wackernagel & Rees, 1996). A few clear disadvantages of the centralised top-down method have been identified.

First, every city, community, or even neighbourhood has its own specifications and characteristics that are unique in its nature. Decisions made on a national or global scale cannot recognise native characteristics and leave no space for local adjustments, consequently, making communities weaker, more dependent, and unstable (Bridger & Luloff, 2001; Carroll, 2010; Kilian, 2009). By contrast, locally developed plans consider local specifications and traditional knowledge of a region, and thus, are able to better address regional needs.

Second, centralised decisions often do not include local voices leaving people feeling disengaged, powerless, and demotivated to participate in the development of local sustainability (Carpini, et al., 2004; Kilian, 2009). Grassroots initiatives, in contrast, activate the diverse potential that every community has, engaging various groups and minorities whose voice would be left unheard and talents unrecognised if a plan was developed outside of a community (Middlemiss, 2008). By designing their own action plan inside of a community, residents feel more motivated and responsible to implement it. Thus, giving residents authority to 'take matter into their own hands', instead of imposing authority from outside. Third, a commitment from world leaders on behalf of their nations is not enough to implement sustainable practices in every town, community, and household (Carroll, 2010). For many, SD on the national or the global level is an abstract idea that leaves citizens indifferent and demotivated (Bridger & Luloff, 2001). The community or the neighbourhood scale seems more feasible and attainable for people as well as more motivational as "the consequences of environmental degradation are most keenly felt and the results of intervention most noticeable in one's own backyard" (Bridger & Luloff, 2001, p. 461). Furthermore, in a community setting the result of the implemented practice can be clearly observed and adjusted (Yanarella & Levine, 1992). And whilst it is important to define the direction of human actions on global or national levels, it will turn into reality only if a majority of individuals comply with it, as global sustainability heavily depends on conscious individual choices (Simon-Brown & Maser, 2010).

Finally, even if global agreements on SD such as Agenda 21 were enforced by federal law, policies and bylaws, those alone cannot motivate individuals to cooperate towards a common good of a society. Communities create the necessary environment for the sense of responsibility and cooperation to appear, which are crucial for mobilising people towards collective actions (Carroll, 2010). Such grassroots initiatives are an important catalyst of societal changes on a much bigger scale as many practices that are applied on the neighbourhood or the regional level create the necessary environment to introduce a shift on a policy level. Seemingly insignificant local actions have the power to create a ripple effect that influences individuals, other communities and larger units to re-evaluate their present practices (Carroll, 2010; Middlemiss & Parrish, 2010; Trainer, 2000). Hence, communities can act as institutions through which not only local but also global sustainable policies can be implemented (Middlemiss & Parrish, 2010)

However, in order for communities to become sustainable, their residents should be informed about possible SD practices that can be applied in their region. Education and practical experience will give people needed tools to implement sustainability in the everyday life of a community (Trainer, 2000). Therefore, SD on a global scale requires a network of sustainable communities where local populations can acquire needed knowledge on how to transition to a more ecologically, socially, and economically balanced lifestyle. Ecovillages, located throughout the globe, can serve as an early version of such a network.

Ecovillages act as important educational centers and local demonstration sites, introducing new techniques as well as restoring traditional sustainable practices (Carroll, 2010; Snyder, 2002). This type of sustainable communities represent an example of bottom-up grassroots initiatives where residents take responsibility for designing, building, and running the community with optimal results for residents, wider community, and the environment (Dawson, 2006; Kasper, 2008). Most ecovillages are created with a strong educational mission, providing consultations, classes, and internships for individuals and organizations (Kasper, 2008). Ecovillages provide a unique opportunity to observe and immerse in the holistic all-inclusive sustainable system that includes not only social, environmental, and economic dimensions but also spiritual, ethical, and cultural ones (R. Jackson & Svensson, 2002). These communities are important testing grounds of SD as they often combine the newest alternative technologies with traditional knowledge that considers local specifications as well as global perspectives (Snyder, 2002). Moreover, being on the frontline of the transitional lifestyle, residents of these settlements are more aware of the barriers to sustainable lifestyle on a community level. Therefore, every region in Canada and worldwide should pay particular attention to these local laboratories of SD.

1.4 Thesis Organization

This thesis consists of seven chapters. Chapter 1 provides a statement of research problem, a rationale for the study, research purpose and objectives. Chapter 2 presents available literature on the current research area. Chapter 3 describes research methodology and elaborates on the researcher positionality and study limitations. Chapter 4 sets the background of the case study by

providing information on the ecovillage. Chapter 5 reports results on sustainable practices integrated in O.U.R. Ecovillage as well as internal and external challenges faced by the ecovillagers on the path towards SD. Chapter 6 discusses the results provided in the previous chapters. Finally, Chapter 7 provides the summary of the results obtained through this study as well as further discussion and suggestions for future research.

CHAPTER 2: LITERATURE REVIEW

2.0. Introduction

This literature review discusses the development and critiques of the sustainable development (SD) concept. It deliberates on the goals and underlying themes of Agenda 21 as one of the main guidelines for SD. This section also describe types of communities that are promoting SD principles as the main guidelines for their advancement as well as paying particular attention to the balance of economic, social and environmental aspects. Finally, this chapter elaborates on the underlying principles of the ecovillage concept, as an example of a sustainable community, and lack of research on the implementation of SD practices in an ecovillage setting.

2.1 Sustainable Development

> Despite its acceptance at UNCED [United Nations Conference on Environment and Development] by many of the world's governments, sustainable development remains controversial because of the complexity of its core issues, the promotional bias of much of its scientific support, and the often speculative nature of its surrounding debate. Cultural differences and North-South polemics create further obstacles to its definition. (Saunier, 1999, p. 587)

2.1.1. Evolution of the Concept

The concept of SD did not emerge overnight, it was developed rather slowly over several decades (Tandon & Garg, 2010), and some claim that the evolution of the term is still continuing (Berke & Conroy, 2000; Gough, 2009; Verma, 2010). Held in Stockholm in 1972, the United Nations Conference on Environment was the first major conference that drew attention to the devastating effects of human activity on the environment (Tandon & Garg, 2010) and well-being of developing countries (Baker, 1997, 2004; Krapivin & Varotsos, 2007). This conference is believed to be the platform for the emerging of the SD concept (Ukaga, et al., 2010). The term SD was introduced in 1980 with the publication of World Conservation Strategy: Living Resource Conservation for Sustainable Development (International Union for Conservation of

Nature and Natural Resources, 1980). This document placed the main emphasis on environmental conservation but did not consider broader socioeconomic factors (Baker, 2004).

A second major conference organised in 1982 in Nairobi, Kenya, drew clearer parallels between social, economic, and ecological problems (Hens, 1996). However, it is the report of the Brundtland Commission published in 1987 that is considered to be an important milestone in shifting from solely environmental awareness to a more holistic socioeconomic paradigm of SD (Bijl, 2010). Developed by the World Commission on Environment and Development and named Our Common Future (also known as the Brundtland Report), the document presented the first widely accepted definition of SD: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987, p. 43). Even though the definition was criticised as not precise (Luke, 2005) the term gained rapid popularity (Moffat, 1996), as it was presented as the antithesis of unrestricted economic growth introducing the importance of social and environmental aspects (World Commission on Environment and Development, 1987). In the Caring for the Earth report released in 1991, SD was already formulated as "improving the quality of human life while living within the carrying capacity of supporting ecosystems" (International Union for Conservation of Nature, 1991, p. 10).

The third major conference that drew the most attention to the concept of SD was held in 1992 in Rio de Janeiro (Baker, 2004; Fernando, 2003; Gillis & Vincent, 2000; Saunier, 1999). Organised by the United Nations (UN) and coined The Earth Summit, the conference brought together a majority of the nations' leaders. The Summit concentrated on two primary tasks: first, finding a balance between ecological preservation and social and economic stability, and, second, developing policies that will help to implement the latter. The conference resulted in a few extensive documents: The Rio Declaration on Environment and Development, Agenda 21, The UN Framework Convention on Climate Change, The UN Convention on Biological Diversity, and The Forest Principles (Baker, 2004). In spite of the fact that the mentioned agreements were not legally supported, which means that no country was obliged to follow them, the mere fact that more than a hundred heads of states have agreed on such an extensive action plan in such a short period of time was a significant step in the evolution of the SD paradigm (Baker, 2004; Dresner, 2002).

The preceding international conferences on SD attempted to conceptualise SD and produce a comprehensive framework (Baker, 2004); however, neither a single agreed upon definition nor clear action plan has been developed (Gillis & Vincent, 2000). Instead there are numerous definitions that emphasize various aspects and prioritize different correlations (Weaver & Rotmans, 2006). The latter can be explained by the fact that SD is based on a complex correlation of ecological and human systems that are unstable, changing and codependent. Therefore, some scientists argue that SD cannot be put in the rigid casing of a framework or definition (Ukaga, et al., 2010; Verma, 2010; Weaver & Rotmans, 2006). Nonetheless, many authors agree that the overarching aim of SD is clear and can be formulated as short and long-term well-being of the society and the ecosystem (Bijl, 2010; Rauschmayer, Omann, & Fruhmann, 2011; Sneddona, Howarthb, & Norgaardc, 2006; Weil, 1997). There is also a consensus on the underlying principles and postulates of the paradigm: a holistic approach that encompasses spatial and temporal perspectives (Baker, 2004; Weaver & Rotmans, 2006); recognition of close interconnection between socioeconomic and biophysical structures (Ukaga, et al., 2010; Weaver & Rotmans, 2006); capacious overarching objective of promoting present and future well-being (Bijl, 2010; Sneddona, et al., 2006; Weaver & Rotmans, 2006); and inclusion of uncertainty and instability (Weaver & Rotmans, 2006).

In spite of a large body of literature that states the importance of SD, this concept has been criticised as vague and still lacking clear guidelines of implementation (Berke & Conroy, 2000; Brown, et al., 1987; Carroll, 2010; Parris, 2003). Whereas MacDonald (1998) states that the Earth Summit held in 1992, which resulted in the development of Agenda 21, provided a comprehensive plan for sustainable development to be applied on global, national and local levels, Carroll (2010) argues that documents such as Agenda 21 do not assist in implementing SD primarily because they are imposed primarily in a top-down approach (Carroll, 2010), whereas society consists of small community units and the wellbeing of those elements determines the health of the whole system (Bossel, 1999). Authors such as Trainer (2000), Baker (2004), Izziv (2011) also believe that government should pay more attention and support successful local SD models and grassroots initiatives.

In spite of the fact that the concept is still evolving (Berke & Conroy, 2000; Gough, 2009; Verma, 2010) and has been criticised by various authors (e.g. Barlett & Chase, 2004;

Berke & Conroy, 2000; Fernando, 2003; Luke, 2005), it is true to say that, as Campbell (1996) puts it: "in the battle of big public ideas, sustainability has won: the task of the coming years is simply to work out the details and to narrow the gap between its theory and practice" (p.304). This task still remains unfulfilled and it requires deep understanding of the comprehensive approach central to SD, which is based on the interdependent pillars or principles discussed in the next section.

2.1.2. Pillars of Sustainable Development

The Brundtland Report determined three fundamental principles of SD: environmental, or protection of the natural surroundings (natural resources and a balanced ecosystem); social, or equal treatment of people (satisfaction of the basic needs of food, water, sanitation, education and employment); and economic, or development of the economy (adequate number of jobs, sufficient salaries) (World Commission on Environment and Development, 1987). Some authors specifically highlight the importance of other aspects such as culture (Sachs, 1999), political situation (Cabrido, 1997), equity (Bhatia & Sharma, 2010), institutional aspect (Karlsson, Dahl, & Biggs, 2007), and wellbeing (Chapin, Matson, & Mooney, 2004). However, environmental, social, and economic aspects are defined as the most significant pillars of SD (Bijl, 2010; Borda & Kiss, 2011; Campbell, 1996; Dale, 2007; Hales & Prescott-Allen, 2002; Harrington, 2011; Hart, 1999; Keiner, 2006; Robinson & Tinker, 1997; Roseland, 2000a), which in the broader meaning can encompass the mentioned aspects such as culture, equity, etc. These three dimensions of SD are often referred to as the Triple Bottom Line (Coffman & Umemoto, 2010; Gibson, 2011; Lehtonen, 2004; Rogers & Ryan, 2001; Simon-Brown & Maser, 2010). Lehtonen (2004) notes that it is the balance and often consensus between the objectives of those three pillars that constitute the core of SD.

The environmental aspect of SD aims to identify and maintain the intricate relationship between the parts of the ecosystem, as well as to determine the place and role of humans in it (Hancock, 1993). Berke (2000) stated that no community can be sustainable without a vibrant life support system that provides human beings with a healthy habitat. The ecosystem's health is recognised as the base for all human activities and development in general (Baker,

2004). Therefore, practitioners and policy makers engaged in the areas of economic and social development should consider the importance of environmental protection in their agendas and pay particularly close attention to the correlation and co-dependency of the three (Lehtonen, 2004).

The social dimension of SD is focused not only on the satisfaction of basic needs such as food, shelter, safety and education, but also encompasses concepts of equity and democracy (Bijl, 2010; M. Roseland, 1992; Vallance, Perkins, Dixon, & Baas, 2011). Social well-being is considered to be one of the main cornerstones of any society (Stiglitz, Sen, & Fitoussi, 2009). Trust and solidarity (Bijl, 2010), inter- and intra-generational equity (Vallance, et al., 2011), community engagement and social cohesion (Bijl, 2010) represent the ability of a society to implement a change and move towards more sustainable living. Nonetheless, the social dimension of SD remains a 'concept in chaos' that mitigates the significance of the term (Vallance, et al., 2011). The social paradigm of SD is a complex system of various intertwined processes that happen not only on the individual but also on the global level, that makes this aspect of sustainability hard to understand and even harder to change (Bijl, 2010; Lehtonen, 2004).

The economic SD is as important as aspect to consider as the previous two. A viable economic system is a critical element of a prosperous society. However, it should be clearly distinguished from economic growth, which focuses on production and not sustainability. Economic growth, placed above social and environmental well-being, is considered to be the main barrier to SD (Grodach, 2011; Tandon & Garg, 2010). Singla and Bansal (2010) point out that economic advancement that disregards the importance of social and environmental aspects can greatly debilitate the society. This can be observed in many parts of the world where economic growth has not benefited lives of individuals due to unequal distribution (Tandon & Garg, 2010) and in some cases even worsened the situation. Therefore, the main principle of the economic dimension of SD is to provide a community with all necessary resources in order to ensure long-term wellbeing of its people (Grodach, 2011; Richardson, 1993). The objective of the economic SD is closely tied to goals of social and environmental dimensions of SD such as equity and conservation (Blakely & Green Leigh, 2010; Newby, 1999). Lehtonen (2004) emphasized that economic advancement should not be the priority of development but rather

serve as an instrument to ensure fulfilment of social goals and protection of a natural habitat. Correct economic incentives can be a powerful tool to motivate society for a positive change (Sinton, 2010).

Literature shows that SD aims to merge social, ecological and economic aspects into one comprehensive tool, and this characteristic differentiates SD from other approaches (Dale, 2011; Harrington, 2011; Lehtonen, 2004). Notwithstanding, particularly this task remains the most challenging as these three pillars keep standing on their own (Lehtonen, 2004). As a result, a question of how to amalgamate such different and often conflicting paradigms remains open (Harrington, 2011). The next section elaborates on one of the most widely accepted documents on SD, namely Agenda 21, which attempts to provide guidelines for SD based on the mentioned three pillars.

2.2. Agenda 21

Agenda 21 is the outcome of the Earth Summit organized by the UN in Rio de Janeiro in 1992 (Barrutia, Aguado, & Echebarria, 2007). It is recognised as the most extensive document on SD (Fernando, 2003; Gillis & Vincent, 2000; Hens, 1996; Hens & Nath, 2005; Hosseini & Kaneko, 2012) and an important milestone in the evolution of the SD concept (Barrutia, et al., 2007). Being supported by a majority of states (B. Dunn, 2010; Pellizzoni, 2001), Agenda 21 attempts to address various issues on global, national, and local levels; therefore, it is believed to be the most complex and daring global agreement in the history of a SD (Hens & Nath, 2005).

Agenda 21 is a comprehensive plan of actions (Hens, 1996; Izziv, 2011; Joas, 2001; Saunier, 1999) that emphasizes the importance of the amalgamation of environmental, social, and economic principles of sustainable development (MacDonald, 1998) to achieve “the fulfilment of basic needs, improved living standards for all, better protected and managed ecosystems, and a safer, more prosperous future” (United Nations, 1992, Chapter 1: Preamble. 1.1). Agenda 21 intends to show a correlation between economic development and ecological degradation at the same time bringing social and cultural aspects to the arena (Carroll, 2010; B. Dunn, 2010). This report addresses various problems of ecosystem and biodiversity

conservation, human and states' rights, the role of education and awareness in community building and the participation of minority groups in a decision-making process (Baker, 2004; Meister & Japp, 1998). Agenda 21 defines primary goals, action plans, tasks, priorities as well as financial aspects of the implementation (B. Dunn, 2010; Sauinier, 2000).

The emphasis of the report lies on collaboration between all stakeholders on all levels of governance (Barrutia, et al., 2007; Izziv, 2011; Pellizzoni, 2001). The document highlights the importance of education, knowledge exchange (Baker, 2004), and free access to information as crucial elements of SD (Joas, 2001). Agenda 21 accentuates the importance of community participation, especially of women, minorities, and indigenous people, in creating change and building a more sustainable society (Dresner, 2002; Joas, 2001). One of the main objectives of Agenda 21 document is embedded in the slogan 'think globally, act locally', which implies that it is important to recognize global problems and try to tackle them on the individual and community levels (Gillis & Vincent, 2000; Moffat, 1996). As a result more than 3000 communities worldwide created local action plans, Local Agenda 21 (LA21), to address global challenges on a community level (Baker, 2004; MacDonald, 1998; Middleton & O'Keefe, 2003).

In spite of the quite expansive context of Agenda 21, it has been critiqued on a various grounds. Dresner (2002) points out that Agenda 21 does not cover all important issues such as demographics, consumerism, militarization and economic instability. Hens (1996) noted that the document does not exhibit some crucial interrelations such as population growth and environmental degradation. Some authors such as Carroll (2010) argue that Agenda 21 is just another broad report that does not provide an actual implementation plan. The document can be seen as a rough draft of a community's action plan, which highlights only the areas of importance but does not provide tools to address them. Another critical point is absence of legal force, as a result, even though 178 heads of states have agreed to commit to the Agenda 21 guidelines, those countries are not obliged to follow them (B. Dunn, 2010; Hens, 1996).

Considering the fact that it might be challenging to implement the objectives of the document through a top-down approach, Agenda 21 emphasises the significant role that local authorities have to play in planning and integrating SD practices (Agger, 2010; Baker, 2004; Krueger & Gibbs, 2007). This role can be fulfilled through localised action plans - LA21 (Baker, 2004). LA21 is supposed to combine decision-making, planning, and application on a

community level (Mercer & Jotkowitz, 2000). It is important for LA21 plans to be inclusive, interdisciplinary, and cross-sectoral in order to meet the needs of a community (Baker, 2004; Owen, 2008). Even though local municipalities are considered to play a significant role in initiating SD practices, it is important that citizens root these practices and implement them in the everyday life of a community (Agger, 2010; Baker, 2004; Izziv, 2011). LA21 accentuates that bottom-up implementation is essential for the success of SD (Agger, 2010). Primary reasons include, first, exclusivity of every region; therefore, it is presumed that each community should develop a separate plan in accordance with SD goals at the same time considering the local specifications. Secondly, bottom-up participatory approach gives main actors - citizens- a feeling of engagement, responsibility and power (Baker, 2004).

Organisations such as the International Council of Local and Environmental Initiatives (ICLEI) provide guidance and expertise for communities on the path to SD (Harrington, 2011). ICLEI states that this local participatory process should include all stakeholders, consider environmental, economic, and ecological aspects, ensure arena for dialog and long term planning, and create an assessing and reporting system (Baker, 2004). Even though the development of LA21 is an important component of the Agenda 21 action plan that was supported by 178 governments, only 61 per cent have actually produced localised programs (Baker, 2004). The Global Development Research Center records two organizations in Canada that work in the field of SD and LA21: Canadian Urban Institute and International Institute for Sustainable Development (The Global Development Research Center, n.d.). However, according to the conducted research, no literature indicates cities or municipalities engaged in the development of LA21 in Canada.

Agenda 21 remains the most comprehensive developmental plan on SD. It provides general guidelines for local municipalities to follow. However, it is the responsibility of every community to implement necessary changes on the local level in order to transition towards sustainable living. And the following section will introduce the notion of sustainable communities that aim to implement SD in their structure and operations.

2.3. Sustainable Communities

2.3.1. Characteristics of Sustainable Communities

The term ‘community’ has a few interpretations, but generally it can be characterized by any of the following three factors: geographical location, social relationships, or identity (Lee & Newby, 1983). In the project presented, the term community incorporates all three factors and has both social and spatial aspects, and can be described as a group of people inhabiting the same territory and sharing a sense of belonging and common interests (Aberley, 1989). For a community to make a shift towards sustainability, its inhabitants have to operate within the biocapacity of a region (Berke & Conroy, 2000; Bridger & Luloff, 2001; Dale, 2011; Mazmanian & Kraft, 1999), ensure social justice (Berke & Conroy, 2000; Bridger & Luloff, 2001; Wheeler, 1997, 2004; Williams, 2005), establish equal political involvement of all stakeholders (Blackburn, 2000; Bridger & Luloff, 2001; Dale, 2011), develop social capital (Bridger & Luloff, 2001; Dale, 2011; Lehtonen, 2004), and strengthen place-based economy (Berke & Conroy, 2000; Bridger & Luloff, 2001; Nozick, 1999). Hempel (2000) defines a sustainable community as: “one in which economic vitality, ecological integrity, civic democracy, and social well-being are linked in complementary fashion, thereby fostering a high quality of life and strong sense of reciprocal obligation among its members” (p.48).

Sustainable settlements particularly emphasise the significance of harmonious coexistence with the natural environment as an essential element of SD (Beatley & Manning, 1997; Berke & Conroy, 2000; Bridger & Luloff, 2001; Dale, 2011; Geis & Kuizmark, 1995; Mapes & Wolch, 2011; Nozick, 1999; Rees & Roseland, 1991; Roseland, 2000b; Williams, 2005). For a community to remain viable, its level of consumption should be balanced with the availability of renewable natural resources in that region (Rees & Roseland, 1991; Roseland, 2000a). Beatley and Manning (1997) emphasize that sustainable communities should follow the patterns of natural systems to create a mutually beneficial symbiosis. Literature indicates a strong belief that genuine community spirit depends on people’s authentic connectedness with the natural environment (Harvey, 1997). Residents of sustainable communities recognise the close interconnection between human well-being and the viability of the ecosystem (Berke & Conroy, 2000; Bridger & Luloff, 2001; Dale, 2011; Geis & Kuizmark, 1995). Therefore, they identify

limitations of the environment and alter their lifestyle accordingly in order to “avoid pollution, natural disaster, and social disintegration” (Geis & Kuizmark, 1995, p. 11).

The social dimension plays a significant role in the development of sustainable communities (Blackburn, 2000; Bridger & Luloff, 1999, 2001; Dale & Newman, 2006; Hempel, 2000; Lehtonen, 2004; Newman & Dale, 2005; Nozick, 1999; Roseland, 2000a; Silberstein & Maser, 2000; Williams, 2005; Young, 1990). Bridger (2001) declares that for sustainable settlements a social justice paradigm as a corner stone of SD. Ensuring non-discriminatory access to resources is a crucial element of building a vibrant interconnected social web in any community (Berke & Conroy, 2000). Bang (2005) stresses that if a group of people intends to harmoniously coexist together, equality of rights would be the central and essential element of the relationships. Furthermore, sustainable communities aim not only to ensure equal access for all stakeholders but also to empower their citizens to actively participate in the development of a settlement through planning and decision-making (Blackburn, 2000; Dale, 2011; Young, 1990). These arguments raise the importance of rebuilding local social capital (Bridger & Luloff, 2001; Williams, 2005). Social capital implies common values (Putnam, 1995), mutual trust (Bridger & Luloff, 2001; Dale, 2011), and diverse networks (Baron, Field, & Schuller, 2000) among governmental bodies, organisations, and individuals. These three elements are essential for a community to move towards common goals (Dale, 2011).

Literature indicates a viable local economy as an inseparable component of a sustainable community (Arkin, 1996; Bridger & Luloff, 1999, 2001; Hempel, 2000; Keiner, 2006; Mapes & Wolch, 2011; Nozick, 1999; Roseland, 2000b). Main principles of a sustainable economy include self-reliance, incorporation of local skills, local production, and control over resources (Mapes & Wolch, 2011; Nozick, 1999; Roseland, 2000b). Morehouse (1997) states that maximum stewardship of local natural and financial resources is the major element for ensuring a community’s stability. Bridger (2001) confirms that economic self-reliance is achieved through strengthening of a local market, supporting regional production and intensifying local cooperation. Nonetheless, sustainable communities should develop only those industries that operate within frames of SD and benefit their members in short and long terms (Beatley, 1995), such as sustainable agriculture. In spite of the fact that the general concept of a

sustainable community is rooted in the TBL, various types of sustainable communities place different degree of importance on the main SD pillars.

2.3.2. Types of Sustainable Communities

Literature describes various types of sustainable communities and initiatives, the most popular of which are slow cities (Knox & Mayer, 2009; Mayer & Knox, 2006; Pink, 2008, 2009), transition towns (Amanda, 2011; Connors & McDonald, 2010; Hopkins, 2008; Lehtonen, 2004), low-carbon communities (Heiskanen, et al., 2010; Middlemiss & Parrish, 2010; Raven, Heiskanen, Lovio, Hodson, & Brohmann, 2008), cohousing communities (Jarvis, 2011; Lietaert, 2010; Williams, 2005; Yang, Zhou, & Yan, 2010), and ecovillages (Bang, 2005; Carroll, 2010; Kasper, 2008; Trainer, 2000). Because sustainable communities are pursuing SD as their main objective, there are many common practices among the mentioned settlements and other types of sustainable initiatives. Nonetheless, various types of sustainable communities have their unique specifications and objectives; following is a short description of each type.

The Slow City, otherwise known as CittaSlow, movement emerged as an antidote to globalisation and the fast paced lifestyle (Knox & Mayer, 2009; Pink, 2008). The main objectives of the CittaSlow network is to achieve regional sustainability by strengthening local economies and focusing on regional social and natural capital (Mayer & Knox, 2006). By their own example, Slow Cities encourage other communities to reclaim the value of their endemic culture, history as well as unique characteristics of the region (Mayer & Knox, 2006; Pink, 2009) . This grassroots movement intends to contrast the quality of live, local sustainability, and livability (Mayer & Knox, 2006) with corporate globalisation. By 2009 CitaSlow network numbered more than 100 cities and towns worldwide (Pink, 2009).

The transition town initiative originated as a response to the climate change and possible peak oil crisis (Amanda, 2011; Connors & McDonald, 2010; Hopkins, 2008; Lehman, 2009). The transition town movement emphasises the vital significance of communities' sustainability and self-reliance that can be achieved through the cooperation of individuals, corporations, and authorities (Connors & McDonald, 2010). Hopkins (2008), the founder of the concept, contended that the local resilience can be built through the network of proactive

individuals that work together towards a common goal and share acquired knowledge and experience. Established in 2005, the transition town movement grew into one of the largest grassroots initiatives worldwide (Amanda, 2011; Connors & McDonald, 2010; Hopkins, 2008) accounting for 313 registered initiatives in the United Kingdom, Canada, Chile, and New Zealand, among others (Amanda, 2011).

Low carbon communities or sustainable energy communities is a recent phenomenon that gained popularity and attention in numerous European regions (Heiskanen, et al., 2010). This movement emphasizes the importance of individuals to act not as consumers but rather as citizens, who care about the well-being of their community (Raven, et al., 2008). Low carbon settlements aim to modify existing energy systems into more sustainable ones through community actions (Heiskanen, et al., 2010; Raven, et al., 2008); therefore, creating a new framework for an ultimate energy user's consumption patterns (Middlemiss, 2008). The accent on the communal collaboration action plan is the most prominent characteristic that distinguishes low carbon communities from transition towns. Sustainable energy settlements recognise that, in order for a change to be successful and long-lasting, it should take place not only on the individual but also on the community level (Davies, 2005; Heiskanen, et al., 2010; Raven, et al., 2008).

Cohousing communities or housing cooperatives present even tighter social integration. These settlements are an example of collaborative living (Jarvis, 2011; Williams, 2005), where physical and social architecture of a settlement is designed by residents (Lietaert, 2010; Yang, et al., 2010). Cohousing communities are based on maximum social interaction, resource sharing, and consensus-based decision-making (Jarvis, 2011; Lietaert, 2010; Williams, 2005). This type of sustainable settlements aims to decrease waste production, consumerism, energy, and resource use (Yang, et al., 2010), and increase social interaction, interdependence, connectivity, and trust among residents (Williams, 2005). Despite the high level of social organisation inside settlements, most residents of cohousing communities are involved in the mainstream economy and are not disintegrated from the outside environment (Dawson, 2006).

Whereas cohousing communities are usually located in an urban environment, ecovillages are primarily rural (Lietaert, 2010). Ecovillages intend to gain maximum self-sufficiency in satisfying the basic needs of their residents with minimum harm to the

environment (Bang, 2005; Carroll, 2010; Kasper, 2008; Trainer, 2000). Even though both cohousing communities and ecovillages list social sustainability and ecological lifestyle as their priorities (Lietaert, 2010), an ecovillage's approach to community development is more holistic and encompasses such aspects as sustainable economics, farming, and conservation (Braford, 2009). Ecovillages present sustainable practices not only as separate units but also as a complex integrated system of reciprocity and interdependency (Norberg-Hodge, 2002; Trainer, 2000). Therefore, ecovillages act as living laboratories for SD and are believed to have the most comprehensive approach to SD among other sustainable communities (Carroll, 2010; Chitewere & Taylor, 2010).

Literature provides a limited amount of information on the sustainable community models in Canada. According to this research, neither federal nor provincial governments keep a record of sustainable communities in the country Due to the lack of information in official sources people interested in this kind of initiatives often look for information on non-governmental websites. Canadian Cohousing Network is one such resource, which gives an opportunity to self-register existent or forming cohousing projects. It reports 9 complete projects in Canada, 6 of which are located in British Columbia and 2 in Alberta and Ontario; 4 projects in development located in Saskatchewan, British Columbia, and Alberta; and 8 forming communities to be established in Quebec, Ontario, and British Columbia (Canadian Cohousing Network, n.d.). There are numerous Transition Town initiatives in Canada registered on the official website of the movement, 10 of which are located in cities, 7 in towns, 8 in rural areas and villages (Transtition Network, n.d.). Global Ecovillage Network indicates 28 existent ecovillages in Canada, 14 of them are located in British Columbia, 5 in Quebec, 1 in Alberta, 2 in New Brunswick, 5 in Ontario and 1 in Newfoundland (GEN, n.d.-c). However, most of them are only in the stage of forming or developing. The next section provides details on the concept of ecovillages, its development and main principles.

2.4. Ecovillage as a Model of Sustainable Community Living

2.4.1. Emergence of the Ecovillage Movement

There is disagreement on when and where the ecovillage movement started, as literature does not specify which type of communities can be identified as ecovillages. Some authors correlate the history of the movement with the emergence of intentional communities[3] (Kasper, 2008), whereas others date it to 1980s with the establishment of the first Swedish sustainable communities (Sullivan, 2008). However a lot of authors mention 1960s to be the pioneering era of the ecovillage movement as it witnessed the creation of such communities as Findhorn in Scotland, Auroville in India, The Farm in the USA, and Sarvodaya in Sri Lanka (Bang, 2005; Dawson, 2006; H. Jackson & Jackson, 2004; R. Jackson & Svensson, 2002), which became icons of the ecovillage development. Even though many ecovillages are classified as intentional communities, this study concentrates on sustainable communities that can be not only intentional but also transitional settlements. That is why this section does not refer to the history of intentional communities; instead it concentrates on the development of the ecovillage movement since the establishment of the Global Ecovillage Network (GEN).

The term 'ecovillage' is relatively new and was introduced in 1991 in the report presented by Gaia Trust[4] (Sevier, Henderson, & Naidu, 2008), a culmination of a study on ecological communities worldwide. The research was initiated by Hildur and Ross Jackson, co-founders of the Gaia Trust. They became interested in the ecovillage movement in the 1980s due to the prominent ecological and social crises, and considered ecovillages to be important demonstration centers for sustainable living that did not receive appropriate attention. The study launched by the Jacksons showed that a full-scale exemplary ecovillage did not exist. However, the diversity of sustainable practices and models acquired could not be ignored; as a result, the formation of the global network seemed an obvious and logical step for the knowledge exchange and mutual support (H. Jackson & Jackson, 2004).

[3] "A group of people who have chosen to live together with a common purpose, working cooperatively to create a lifestyle that reflects their shared core values" (Kozeny, 1995, p. 18)

[4] Gaia Trust is a charitable organization that advocates transition to more sustainable and spiritual society and played a significant role in evolution of the ecovillage movement.

The formation of GEN united various ecological settlements around the world and gave a voice to the ecovillage movement (Dawson, 2006; Kasper, 2008). GEN was the result of the Ecovillage and Sustainable Communities conference held in 1995 in one the most well-known ecovillages of Findhorn, Scotland (Bang, 2005; H. Jackson & Jackson, 2004; Kasper, 2008). The event brought together 400 people from forty countries and resulted in numerous proceedings (Dawson, 2006; H. Jackson & Jackson, 2004). The network was created to support and connect people and organizations that were working on promoting and implementing sustainable lifestyles (GEN, 2008) as well as to establish a global educational weave of place-specific living sustainable communities (H. Jackson & Jackson, 2004). Therefore, in order to represent the network geographically, GEN was divided into three main regional representative bodies operating in Asia, Australia and Pacific Islands; North, Central and South America; Europe, Africa and Middle East; with administrative centers in the USA (The Farm), Germany (Lebensgarten), Australia (Crystal Waters) and coordinating office in Denmark (Gaia Trust) (H. Jackson & Jackson, 2004).

Since its establishment, GEN has worked worldwide to initiate and foster various projects that can assist local populations to transition towards sustainable lifestyle. Among recent programs are the Senegalese Ecovillage Project and the Baltic Sea Ecovillage Project. The Senegalese Ecovillage Project was launched in 2010 with the support of the United Nations Development Programme and Global Environment Facility. This project assists traditional Senegalese villages to implement sustainable practices and transition to ecovillages (GEN, n.d.-a)[5]. Baltic Sea Region Project was initiated in 2011 by the EU-funded collaboration program 'ECOVILLAGES'. This project brings together several European universities, institutions, and non-governmental organizations to raise awareness about ecovillages as models of SD (GEN, n.d.-b). In 2000 GEN obtained the consultative status for the United Nations Economic and Social Council and since then assists UN in some programs related to sustainable community development (GEN, n.d.-d)

Even with the creation of GEN, it is still not easy to determine the exact number of ecovillages in the world as well as to investigate all emerging trends of this movement. In 2005

[5] N.d. stands for 'no date'.

the GEN database listed 347 registered ecovillages worldwide: 147 in Europe, 48 in Oceania and Asia, 152 in North America (GEN, 2005). However, there are many unregistered ecovillages around the world that either maintained or adopted sustainable practices (Svensson, 2002b). For example, according to the unofficial website of the ecovillages in Russia, on December 2012 there were 210 registered communities in the country (Поселения.ру, n.d.) while most of them are not registered in GEN.

2.4.2. Underlying Principles of the Ecovillage Concept

One of the earliest definitions of an ecovillage was formulated by Gilman (1991, p. 10) stating that an ecovillage is:

> [a] human-scale, full-featured settlement in which human activities are harmlessly integrated into the natural world in a way that is supportive of healthy human development and can be successfully continued into the indefinite future.

The definition has not been significantly altered since then and carries the same characteristics of a relatively small community of people who are seeking maximum self-reliance (food production, commerce, entertainment, education, etc), as well as high quality life in physical, mental, and emotional aspects with minimum harm to the environment (Bang, 2005; Sullivan, 2008).

Svensson (2002b) claims that many communities in the Southern hemisphere traditionally follow SD principles and can be called ecovillages but are not registered as such. However, a reader should not mistake traditional agrarian villages with sustainable communities. Gilman (1991) states that ecovillages have very distinctive features and objectives that differentiate them from traditional agricultural villages, and the assumption that ecovillages are just communities that have returned to a tradition way of life is wrong. Gilman (1991) insists that traditional agricultural villages are facing many problems and cannot be considered sustainable or adoptable by the modern West. The form of a village was preferred by ecovillages due to its relative detachment that allows residents to experiment with alternative practices (Kilian, 2009), but underlying principles and guiding objectives of the ecovillage paradigm are quite different from traditional agricultural villages (Dawson, 2006; Gilman, 1991). The ecovillage model offers

a new synthesis that combines close cooperative lifestyle, systems thinking, community-based governance, and often advanced alternative technologies (Dawson, 2006).

Although every ecovillage sets its own rules (Sevier, et al., 2008), the main objectives of an ecovillage are defined by the principles of ecological, economical and social SD that are shared among various types of sustainable communities (Carroll, 2010). As stated by H. Jackson and Jackson (2004), the universal designation of the ecovillage concept and an official framework for the ecovillage development have not been established yet; therefore, most ecovillages are following unofficial guidelines through community networks and grey literature. GEN attempted to establish a designation for the term that prevented the misuse in some cases but the concept still lacks official criteria. GEN also developed the Community Sustainability Assessment checklist that can help an ecovillage in auditing its progress towards sustainability. Jackson and Svensson (2002) in their book *Ecovillage Living: Restoring the Earth and Her People* present 15 elements of ecovillage living essential for sustainability. These principles are grouped under social-economic, cultural-spiritual, and ecological criteria. Even though many principles stated by Jackson and Svensson are mentioned in SD literature, there are some that are distinctive, such as local currency, preventive healthcare, permaculture, localization, holistic circulatory worldview, reverence for cultures, spirituality, and personal unfolding.

Despite the similarities with other sustainable communities, there are characteristics that differentiate ecovillages from other ecologically-oriented sustainable communities. The most prominent are the following: a) high importance of the community and sense of belonging (Dawson, 2006; Gilman, 1991; Kasper, 2008; Norberg-Hodge, 2002); b) common values and objectives (Dawson, 2006; Kasper, 2008); c) stewardship of the land and resources (Svensson, 2002b); d) a community design by residents (Dawson, 2006); e) strong education mission (Carroll, 2010; H. Jackson & Jackson, 2004; Kasper, 2008). Sevier (2008) points out that there cannot be a ‘typical ecovillage’ as this model imbeds adaptability to local environment, climate, and culture; therefore, there can only be guiding principles but not a rigid framework.

By analysing some of the most progressive ecovillages around the world, Carroll (2010) distinguished a few most common sustainable practices: alternative way of governance and decision-making; cohousing; communal use of resources; usage of green technologies and energy-efficient methods; organic farming; production of own food, products, and energy;

recycling of organic materials; protection of green areas; restoration of destroyed areas and depleted lands; educational and internship programs in the area of sustainability for members and general public. This list is not complete and demonstrates only the most prominent practices but the techniques and methods of implementation vary in every community and are constantly improved and adjusted (Kasper, 2008). Ecovillages treat SD as a dynamic process of constant learning, adjusting and improving; therefore, it should be perceived as a vibrant system but not the end result (Kasper, 2008).

2.4.3 Previous Research on Ecovillage Communities

The notion of ecovillages was discussed in a few academic works. Ideas of this movement as well as some elements of the ecovillage lifestyle were mentioned in various disciplines such as psychology (Kirby, 2003), geography (McCosh, 2001), political science (Trainer, 2000), ecology (Kasper, 2008; Sevier, et al., 2008; Sullivan, 2008), economics (Mulder, Costanza, & Erickson, 2006), anthropology (Veteto & Lockyer, 2008) and law (Carroll, 2010). Previous research on ecovillages primarily highlights the general trends and underlying principles but does not draw the model of an ideal settlement (Sevier, et al., 2008). Following are the most comprehensive studies on ecovillages discussed in academic literature.

The direction of the research work on ecovillages can be grouped into the three main topics. The first one emphasises the importance of ecovillages as educational centers and living laboratories for SD. By analysing a history of SD implementation, Carroll (2010) asserts that SD cannot be imposed by the government but can be implemented only through a bottom up community-based initiatives. The main argument of Carroll's work is that ecovillages fulfill an important role as educational centers that can provide theoretical and practical knowledge on SD and help other communities to transition to a more sustainable lifestyle. Veteto and Lockyer (2008) in their study conducted in Earthhaven Ecovillage, North Carolina, USA looked at the lifestyle of the ecovillagers from the perspective of environmental anthropology. The study showed that the ecovillage could transfer the theoretical idea of sustainability into reality with the help of permaculture principles. By being a community that is striving to increase its self-

sufficiency and adaptive capacity, the ecovillage creates a living experiment that others can learn from.

The second reason that researchers are interested in this type of sustainable communities is related to the efforts of ecovillagers to influence the culture of modern unsustainable society. Ergas (2010) researched the position of ecovillagers within a bigger social structure. The author states that ecovillages are trying to influence not only policies in their region but also worldviews of the surrounding communities. And in spite of bureaucratic challenges faced by ecovillagers, they neither give up nor try to isolate themselves from the mainstream society, but rather take a position of 'being the change' they want to see happening in the society. Kasper (2008) in his research on eight ecovillages in the USA draws a conclusion that the importance of ecovillages is not only in their efforts to live lightly on the land but also to create land ethics.

A few studies showed that ecovillages have lower ecological impact than other communities located in the same region[6] (see Siracusa (2008), Assadourian (2008), Mulder (2006)). Thus, by examining ecovillages, researchers are trying to understand how these communities achieved such results. In the case study of an ecovillage in Ithaca, New York, USA, Kirby (2003) intended to analyse personal motives of the ecovillagers to pursue sustainable lifestyle.. The results revealed that in spite of the popular idea, it is not environmental reasons that are the main drive for the ecovillage establishment. The study shows that even though ecological sustainability is very important to the ecovillagers, the sense of community fostered in the settlement is the main factor to reside in such settlements. Kirby states that environmental and social factors can be explained by the need for the connection. He identified five kinds of 'connectedness': with nature; with community; with the land; with the self; and across generations. Kirby concludes that ' this is an identity that is based on a sense of connectedness to core elements that promote the experience of a sustainable life' (Kirby, 2003, p. 332).

Grey literature offers a wide variety of books and publications on various aspects of ecovillage living (e.g. Bang (2005), Christian (2003), Walker (2010), Jackson and Svensson

[6] Findhorn Ecovillage inhabitants have ecological footprint twice smaller than the average citizen in the country (Assadourian, 2008)

(2002)). Dawson (2006), the former president of the Global Ecovillage Network, in his book *Ecovillages: New Frontiers for Sustainability* presents five case studies of ecovillages located in North America (Ecovillage at Ithaca, USA), Africa (Mbam and Faoune, Senegal), Europe (Sieben Linden, Germany), South America (Ecoovila, Brazil) and Asia (Auroville, India). This study proves the commonality of the underlying developmental principles among the ecovillages, but it also draws on distinctions among them. Whereas most of the ecovillages in the Northern hemisphere are intentional communities, the South has different examples of existing settlements, such as Mbam and Faoune in Senegal, that have changed the course of their development in order to restore the ecological, social, and economic balance of the region (Dawson, 2006). Ecovillages are usually located in rural areas, but the example of Ecoovila, a neighbourhood in the middle of a Brazilian megapolis, is legitimate proof that ecovillage principles can be successfully implemented in an urban area; moreover, Ecoovila not only serves as a demonstration site of sustainable lifestyle but its residents also provide consultancy services to individuals, businesses, and educational organizations. Every community individually decides on the top priorities and overarching mission of the settlement. So whereas the main objective of Auroville in India is a message of equity and non discrimination; Sieben Linden in Germany emphasises demonstrating the lowest ecological footprint; Mbam and Faoune in Senegal educate neighbouring regions about sustainable traditional practices; meanwhile, Ecoovila in Brazil looks for the most ecological urban practices through the use of modern technology (Dawson, 2006). The concept of an ecovillage shows partial but nonetheless practical implementation of SD principles (Ergas, 2010; Kasper, 2008; Kilian, 2009; Lockyer, 2008).

2.5. Research Gap

Literature describes SD as a much-needed concept for tackling complex global problems where social, economic, and environmental challenges are closely correlated. Wide criticism of the theory undermines the importance of SD as a comprehensive holistic approach to development in general. The main commentary propounded in the literature emphasises the absence of one universal definition and clear action plan. By contrast, some authors state that

neither prior nor latter is possible or necessary as SD is based on the interrelationship of dynamic ecological and human systems. The SD paradigm, based on equal development of environmental, social, and economic aspects, should not be disregarded but moreover developed and applied on all levels. The earliest version of this agreement was embedded in Agenda 21, an action plan for SD signed by a majority of the heads of states in 1992. And in spite of the criticism this document remains the most significant international agreement on SD.

Agenda 21 provides numerous objectives of SD that should be implemented on local and national scales. However, it remains unclear for many communities how to implement goals and principles described in Agenda 21 in practice. That is why sustainable communities play an important role as educational centers for a sustainable lifestyle. Ecovillages base their objectives on harmonious development on all three pillars of SD. Research shows that ecovillage practices can be applied with a population of a couple of dozen to thousands of people in both rural and urban areas. However, in spite of the wide range of sustainable methods integrated in an ecovillage setting, academic literature lacks comprehensive research on this type of sustainable communities particularly in the Canadian context. Therefore, this study intends to fill the gap by discussing the SD practices integrated into an ecovillage and analysing the main internal and external challenges faced by ecovillagers during the establishment and development of the community.

The next chapter will elaborate the research methods used for the collection and analysis of the data.

CHAPTER 3: RESEARCH METHODS

3.0. Introduction

This chapter elaborates the research methodology, methods of data collection, and an approach to data analysis used in the current study. It starts with the reason for adopting a case study methodology. The following section describes stages of the fieldwork and data collection methods that include document analysis, interviews, focus group, participant observation, and research photography. A section on the approach to data analysis that presents coding techniques as well as the software used for transcribing, coding, and analyzing collected data is also included. This chapter will conclude with a statement on study limitations and researcher positionality.

3.1. Case Study Methodology

This study incorporated qualitative case study research methodology to analyze O.U.R. Ecovillage's sustainable practices. Case study methodology offers a holistic approach and detailed exploration of the situation (O'Leary, 2004) that is particularly useful in investigating social issues (Yin, 2009). This methodology is an appropriate tool to collect data regarding specific characteristics of a site (Baxter, 2010). It also gives an opportunity to have information exchange with participants (M. Johnston et al., 2006) and derive conclusions from more than one source (Yin, 2003). Multiple data sources not only provide a more complete picture but also help to refine the findings (Patton, 1990).

Single or multiple case studies method can be chosen; however, the comprehensiveness of research does not always depend on the sample size (Yin, 2003). The purpose of this research is to improve understanding of how sustainable development (SD) principles can be implemented on a local level; hence, the nature of the research is exploratory. O.U.R. Ecovillage was chosen as an example of a well-established sustainable

community that demonstrates the practical implementation of sustainable principles common to many ecovillages. Therefore, due to the characteristics of the site as well as the purpose and nature of the research, a single case study method is sufficient to meet the objectives of this study.

A case study may include various data collection methods. The six weeks full-time fieldwork for this study was divided into two stages. The first phase took place from 29 July until 21 August 2011, during which I introduced myself to the community and familiarized myself with the research setting. In the course of this stage, I attended a permaculture workshop on the underlying principles of the ecovillage design, conducted informal interviews, participated in the community's practices as a volunteer, indentified key participants for the semi-structured interviews, and photographically documented architectural and ecological features of the community. During the first week of the fieldwork, I introduced myself and my research to the community during the permaculture workshop that took place in the ecovillage. The second phase occurred from 22 August until 12 September 2011. Throughout this period intensive data collection was conducted, that included participant observation, semi-structured interviews, focus group, and document analysis.

3.2. Criteria for the Analysis

Agenda 21 states eight principles for the Sustainable Human Settlement Development that were advised to be accepted as "the core principles of national settlement strategies [in order to] improve the social, economic and environmental quality of human settlements and the living and working environments of all people" (Agenda 21, paragraph 7.4). The Sustainable Human Settlement Development principles highlighted in Agenda 21 embrace such topics as governance, social equity, land-use, human settlement planning, environmental infrastructure, energy systems, and human resource development. These principles do not completely cover the broad and complex theory of SD but nevertheless provide a comprehensive framework for sustainable community development, as well as fulfill the objectives and fit the scope of this research.

Therefore, in order to draw conclusions on how SD can be implemented on a local level to ensure sustainable human habitat development, this study will examine O.U.R. Ecovillage according to the following Agenda 21 criteria:

1. Providing adequate shelter for all;
2. Improving human settlement management;
3. Promoting sustainable land-use planning and management;
4. Promoting the integrated provision of environmental infrastructure: water, sanitation, drainage, and solid-waste management;
5. Promoting sustainable energy and transport systems in human settlements;
6. Promoting human settlement planning and management in disaster-prone areas;
7. Promoting sustainable construction industry activities;
8. Promoting human resource development and capacity-building for human settlement development.

It is important to mention that the activities proposed by Agenda 21 are mostly directed towards national and local governments. O.U.R Ecovillage is a small community that does not have the capacity to fully address all the guidelines mentioned by the document. However, in spite of limitations, the settlement offers various sustainable practices that can be applied on individual, neighbourhood, and community levels.

3.3. Data Collection Methods

In order to substantiate the study and conduct comprehensive research, a mixed-method approach was used. Data collection included document analysis, informal interviews, participant observation, semi-structured interviews, focus group, and research photography. By implementing different methods, a wide range of data was obtained that gave clearer understanding of the research area and in detail answered the main questions of the study.

The following figure links the chosen data collection methods to the objectives of the study

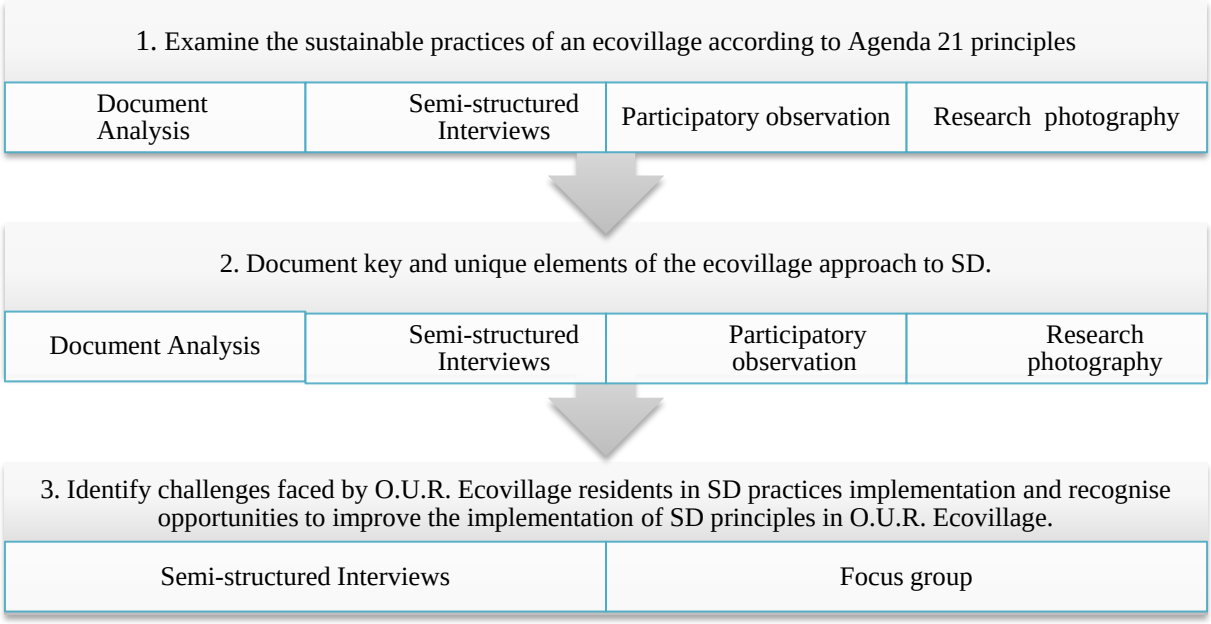


Figure 1 Research Objectives and Supporting Research Methods

3.3.1. Document Analysis

Document analysis may include a wide range of written documents such as academic documents, historical documents, communication documents, multimedia sources (O'Leary, 2004), as well as mass media, visual and virtual outputs (Bryman & Teevan, 2005). This method is used to provide background information on the researched area as well as to locate the gap in the existent literature (Bailey, 2007). Document analysis assists in refining and supplementing other data (Yin, 2003).

In this research, document analysis included academic sources as well as 'grey' literature. Printed, digital, visual, as well as virtual materials were used to collect the full spectrum of data. Academic literature, such as peer-reviewed journals and academic books, was used to collect information on the following topics: development of SD concept; SD principles; sustainable communities; economic, environmental, and social aspects of SD; bottom-up approach to sustainability. Due to the limited research on sustainable communities and particularly on ecovillages, 'grey' literature, such as community plans, local documents, newspapers, magazines, non academic books, television programs, photographs, and websites, was also used.

As any data collection method has its weaknesses, Scott (1990) suggests that any document should be evaluated by the following criteria: authenticity, credibility, representativeness, and meaning. Due to the overuse of the terms 'sustainable development' and 'sustainability' and their multiple definitions, academic literature on this topic was evaluated for both representativeness and meaning. Grey literature was examined for authenticity and credibility by ensuring that information was presented in more than one source.

Grey literature assisted in identifying the main characteristics of a sustainable community; collecting information on existing ecovillages in Canada; providing recommendations for future implementation, practices, principles, and organizational structure of ecovillages' and enriching data on O.U.R. Ecovillage. The document analysis was used throughout the study.

3.3.2. Participant Observation

Johnston et al. (2000) describe participant observation as the "immersion of the observer in the experiential context of the subject" (p.270). This method of data collection gives a researcher the possibility to have a direct experience within the researched area and with the participants (Bryman & Teevan, 2005). Bernard (2006) considers this method particularly important because "it produces the kind of experiential knowledge that lets you talk convincingly, from the gut " (p.342). Experience is the key element in participant observation that deepens the researcher's involvement in the life of a social setting (Kearns, 2010), provides clearer understanding of the daily life of its members (Bryman & Teevan, 2005) and significantly enriches the data.

In order to better analyze the practices of the community, I spent six weeks in O.U.R. Ecovillage. The initial connection with the Ecovillage was established in May 2011. Shortly after, I received an agreement from the executive director of the O.U.R. Community Association, who is also one of the long-term residents of the community, to participate in the research. Throughout my fieldwork I was studying, working, participating in meetings, and communicating with visitors, interns, and ecovillagers.

During the first two weeks I attended a permaculture workshop organized by the ecovillage that gave me a clear understanding of the design principles that were implemented in the development of the ecovillage. During the rest of the fieldwork I participated in the daily activities of the community as a volunteer that enabled me to see the life within the community clearer than being just a detached observer. O.U.R. Ecovillage is very open community that eagerly welcomes interns and volunteers to participate in almost all aspects of daily life, decision making process and development of the ecovillage. During the fieldwork I had a chance to participate in weekly council sessions, community meetings and general circle meetings. I was also allowed to take part in 2012 programming, hospitality, building team, fundraising and outreach team, and gardening team meetings that gave an insight into the organizational structure and decision-making process of the community.

Throughout my stay in O.U.R. Ecovillage I carried out various chores and volunteered in the garden (weeding, watering, harvesting), on the building site (plastering, preparing of straw bale), in the office (filing) and helped with event organizing. During my stay the community organized GMO discussion, Cob in the Garden workshop, Earth Dance Children's Camp, Nourishing Food Crafting workshop, Emerging Green Builders tour, and Deconstructing Dinner meeting. Sharing communal meals gave me a chance to have an insight into the lives of the residents and helped to establish good relationships with ecovillagers and interns. Appreciation walks, women's circle, movie nights, discussions around the fire, site tours, celebrations, festivals, and many other social events in the ecovillage provided a broad picture of the multidimensional life in the ecovillage.

My daily interactions with members of the community and experiences from participant activities were recorded in field notes the same day. Field note form (see Appendix B) was structured according to the Agenda 21 criteria on sustainable human habitat development. Therefore the main focus of my observations included the following topics: provision of adequate shelter; human settlement management; sustainable land-use planning and management; environmental infrastructure; sustainable energy and transport systems; human settlement planning and management in disaster-prone areas; sustainable construction industry activities; human resource development and capacity-building for human settlement

development. Observations that did not fit any of the mentioned criteria were also recorded in the form and later coded under a separate code.

3.3.3. Interviews

The interview is an extensively used method in qualitative research (Bryman & Teevan, 2005) as it permits a researcher to address specific issues (Bailey, 2007). In case studies this method assists to inquire about intricate social relationships (K. Dunn, 2010), deepen the knowledge on a study site, or clarify some aspects of already collected data (Bryman & Teevan, 2005). Open ended semi-structured interviews were chosen for this research due to its scheduled but flexible structure (K. Dunn, 2010) that enables participants to freely express their opinions (Bryman & Teevan, 2005). An interview guide (see Appendix C) was based on principles highlighted in Agenda 21, Chapter 7 on Sustainable Human Settlement Development.

I conducted 15 informal and 13 semi-structured interviews during my stay in the community. Informal interviews with residents, interns, and visitors provided people's general opinions about the community as well as some facts about the ecovillage. Semi-structured interviews were conducted during the second stage of the fieldwork with representatives of the board of directors, residents of O.U.R. Ecovillage, people employed in the ecovillage, and long term interns. 'Snowball sampling' technique (Bryman & Teevan, 2005; McIntyre, 2005) was used to define the interviewees, according to which managers were asked to direct me to community members who might be important for my research. Semi-structured one-on-one interviews were conducted to learn in-depth about organizational structure, decision-making process, and practices of the settlement, as well as to understand strengths and weaknesses of the community's practices. Some participants showed interest in looking through the list of the questions a couple of days before the interview and informed me which topics they would like to skip due to the lack of information (e.g. some participants did not know about the infrastructure on the site or the land-use plan). Every person interviewed had his/her area of expertise so I asked additional questions regarding those topics. All interviews were digitally recorded and analyzed using NVivo© 9.0, a qualitative data analysis software. Real names of

the participants were substituted with pseudonyms; however, the executive director Brandy Gallagher asked me to use her real name.

3.3.4. Focus Group

A focus group is defined as a conversational or short tasks session of a small group of people organized by the researcher to discuss a specific topic or set of questions (Bedford & Burgess, 2001). This method became particularly popular in social science research (Stewart, Shamdasani, & Rook, 2009). Focus group provides an environment for people to express their opinions and converse on the topics directly or indirectly related to them (Lunt & Livingstone, 1996). The focus group setting allows people to openly confront and question responses of other participants (Goss, 1996), that provides more refined and clear data (Bedford & Burgess, 2001). This method allows experts and experienced participants to share knowledge, compare ideas (Dobson, 2004), and come to some common conclusions (Stewart, et al., 2009). The focus group format allows participants to lead the direction of the discussion and address important subjects (Longhurst, 2003; Stewart, et al., 2009). This data collection method is particularly useful for researchers who are interested in investigating "the nuances and complexities of people-place relationships" (Cameron, 2010, p. 171). These were the primary reasons that the focus group method was chosen for the current research.

The focus group session was conducted at the end of my stay in the ecovillage in order to investigate the main challenges that the community faced in implementing sustainable development practices in the ecovillage. There are various opinions in the literature regarding the optimal number and heterogeneity of participants. Kitxinger and Barbour (1999) noted that three participants is enough for a successful session, whereas Bedford (2001) argues that a focus group can lack dynamic if the number of interviewees is less than five. Therefore, the focus group organised in the ecovillage consisted of five current and former long-term residents of the community that insured diversity of opinions but did not distort the intimacy of the discussion. The decision on the heterogeneity of the group largely depends on the objectives of the research and type of the information that is planned to be obtained (Cameron, 2010). As was mentioned earlier in the case of this research, the focus

group session was organized to draw concluding data on the obstacles that have prevented or complicated implementation of sustainable practices in O.U.R. Ecovillage. Hence, the session might have led to a discourse on delicate or disputable topics; therefore, homogeneity of the group was preferred (Hoppe, Wells, Morrison, Gillmore, & Wilsdon, 1995). Participants of the focus group were representatives of the board of directors of the O.U.R. Community Association, O.U.R Ecovillage Co-operative, Sustainable Community Development Cooperative, and Hearthkeepers, who knew in detail the intricate underlying problems faced by the community.

The focus group participants thanked me for providing a space for discussing important issues, which otherwise would have been left unspoken. They also mentioned that the conversation highlighted important aspects of the community life. The focus group provided information that would be impossible to collect through participant observation during only six weeks, as some of the issues were lying under the visible surface.

3.3.5. Research Photography

The popularity of visual data in social research is growing and photography is recognized as an important research tool (Bryman & Teevan, 2005; Byers, 1964; Collier, 1967; Harper, 2002; Latham, 2003; Patton, 1990; Schwartz, 1989); particularly for its detailed illustrative capacity and fixed nature of the data that can be numerously reviewed after fieldwork (Ball, 1998). As Byers (1964) pointed out: “the photograph is not a 'message’ in the usual sense. It is, instead, the raw material for an infinite number of messages which each viewer can construct for himself” (p. 31). A picture, worth a thousand words, can provide an insight into the life of an individual or a whole community (Latham, 2003). Photographs can be used as *aide-mémoires* complementing other data; as a source of independent data; or as prompts stimulating discussion and encouraging sharing among participants (Bryman & Teevan, 2005).

In this study photographs were used as aide-mémoires to supplement the field notes. The main focus of this method was to capture architectural, planning, and ecological features of the community and the surrounding area as well as daily life in the ecovillage. Ecovillagers

shared their photographs taken during various events and stages of the community development[7]. One of the long-term residents gave a short description of the community's photos that provided me with new perspectives on other social events that had occurred in the community (such as a wedding and a music festival). Visual data has contributed to the systematic knowledge necessary for the understanding and analysis of the practices used in O.U.R. Ecovillage. Furthermore, photographs not only helped me to keep the image of the site alive but also to draw a more complete picture of the community for a reader.

3.4. Approach to Data Analysis

Interviews, field notes, site tours, meetings, photographs, a focus group session, and important meetings were digitally recorded and transcribed using NVivo 9.2 computer program. This qualitative data analysis software enables organizing of large data sets and grouping selected codes in a single document. Initial coding followed the main criteria described in Agenda 21, Chapter 7 on Sustainable Human Settlement Development. Axial coding provided identification of themes and sub-themes in the mentioned categories. Data that were not directly related to the chosen eight criteria were categorized using descriptive codes. Grouping of all information under each theme helps to synthesize and analyze the data more effectively and as a result derive final conclusions.

3.5. Researcher Positionality and Study Limitations

Positionality is almost inevitable in research and can appear due to several reasons: the researcher, the behavior of the subject and the researcher's plan (Katzer, Cook, & Crouch, 1998). Researcher's behavior; assumptions and expectations; as well as personal characteristics of an investigator, such as age, gender and race can be a reason for positionality (Bryman & Teevan, 2005; Katzer, et al., 1998).. Individuals might feel obliged

[7] I have received permission to use all photos shared by the ecovillagers in this work.

to highlight only limited aspects of a situation or behave in the expected manner (Katzer, et al., 1998). Positionality due to a researcher's plan might occur as a result of a choice of a site, participants and/or research methods, and inappropriate planning (Katzer, et al., 1998). Many social studies concentrate on a small sample to define a theory that can be applied to a bigger population (Becker, 1991). Thus, the positionality might appear due to choosing not large enough sample (Bryman & Teevan, 2005) or a sample with specific characteristics that does not portray the general traits (Maxwell, 2009). It is nearly impossible to avoid positionality in research and most important for a researcher is to be aware of weak areas and to do everything possible to avoid errors (Katzer, et al., 1998).

There were multiple limitations and possible aspects of the positionality to this study. My role as a researcher might have put some pressure on the residents of the ecovillage. Even though I spent considerable time in the community and participated in the daily life of the settlement, my association with the researching institution might have imposed some restrictions on the residents. The spectrum and the volume of the information shared with me depended on the amount of trust and comfort level experienced by the individuals. My fieldwork consisted of six weeks of immersed living in the community that gave me quite diverse information about various aspects of the ecovillage's life; however, I am aware of the fact that my observations in summer do not highlight many social changes and practices that occur through other seasons. Furthermore, my own attachment to the ecovillage and friendly relationships established during my six-week stay creates its own positionality. Additionally, this study uses multiple concepts, such as SD, sustainability, social capital, participatory decision making among others, which might have been interpreted differently by the participants and led to imprecise data interpretation. Finally, data analysis is a subjective process that includes researcher's values, views and often expectations. Interpretation of the results will reflect to some degree my experiences, views, values and connections with people.

The next chapter sets the stage for the results and discussion chapters by providing necessary background information for a reader.

CHAPTER 4: BACKGROUND OF THE CASE STUDY

4.0. Introduction

This chapter sets the background of the case study. Its purpose is to provide all necessary information for the reader to have a clear understanding of the study site. The chapter commences with a brief description of the bioclimatic and socioeconomic characteristics of the region where O.U.R. Ecovillage is located. This information is provided for the better understanding of the natural environment, its benefits and limitations for the sustainable practices implementation in the community. The following section presents the history of the ecovillage development, describing collaboration, challenges, and possibilities that occurred during the 12 years of the ecovillage's progress. There follows the discussion of the vision, mission, and underlying principles of O.U.R. Ecovillage that set the direction of the community development. This chapter also portrays the organizational structure of the community, highlighting the roles of O.U.R Community Association, O.U.R Ecovillage Co-operative, and Hearthkeepers as the main governing entities in the ecovillage. The chapter concludes with the virtual tour to the community describing one of the September days witnessed by the researcher. The data for this chapter was drawn mainly from O.U.R. Ecovillage official website, O.U.R. Ecovillage Information Handbook, site tour, field notes and to a lesser extend from interviews or a focus group.

4.1. Bioclimatic and Socioeconomic Characteristics of the Region

Vancouver Island is located on the west coast of Canada in British Columbia. The Vancouver Island Ranges, a part of the Insular Mountains, stretch from the north to the south of the island and greatly influence regional bioclimatic characteristics. Whereas the western part of the island is exposed to the prevailing winds and as a result experience a high level of precipitation, the eastern side is protected by the mountain range that creates much milder and drier conditions (McGillivray, 2000).

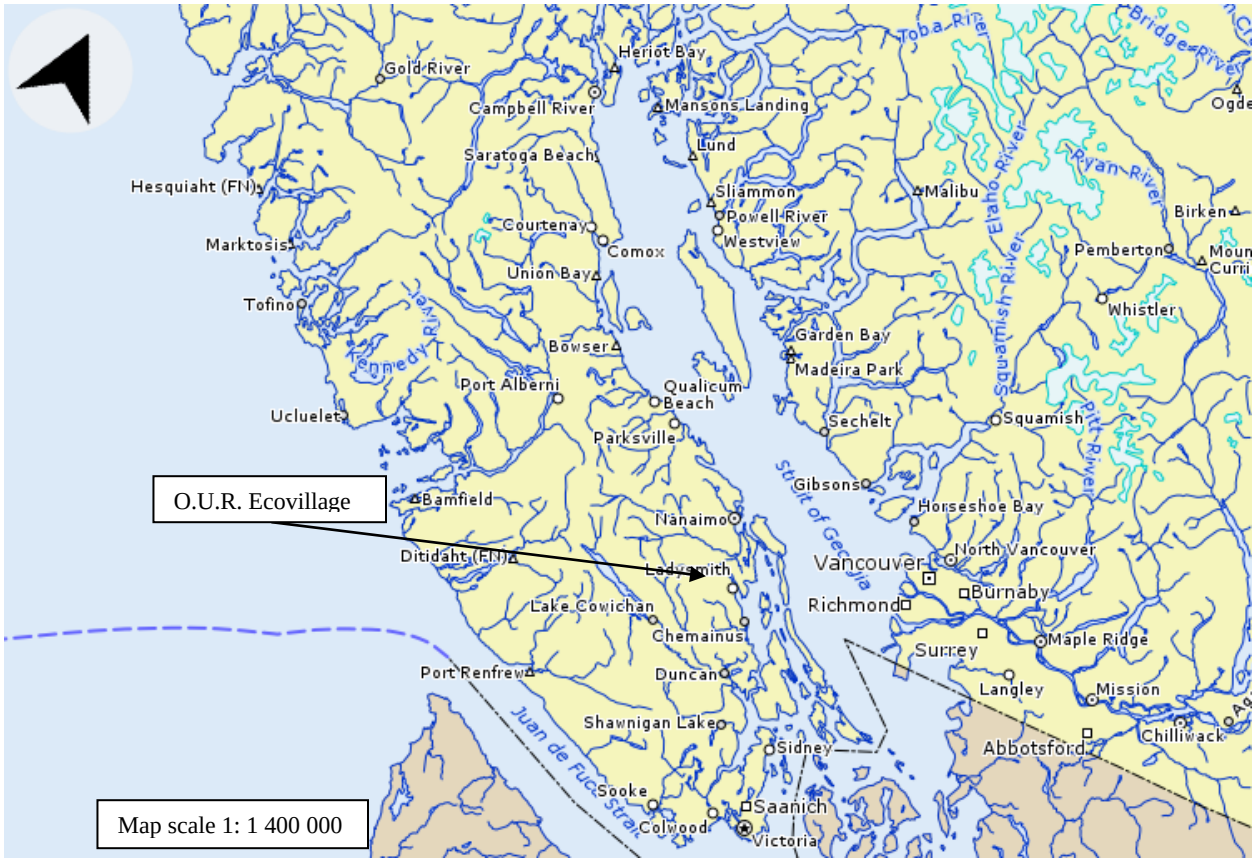


Figure 2 Map of British Columbia.
Map source: Natural Resources Canada, http://atlas.nrcan.gc.ca

O.U.R. Ecovillage is located in the southern part of the island near Lake Cowichan. The settlement lies within the unique bioclimatic region on the south-eastern part of the island, called the Coastal Douglas-fir zone. The climate of this relatively small area is highly determined by the Olympic Mountains in Washington that block the passage of the rain. As a result, the Coastal Douglas-fir zone is characterized by wet temperate winters and dry warm summers. This region is considered to have the mildest climate in Canada with the longest growing season, however, with limited water supply (Green & Klinka, 1994).

According to the administrative division, O.U.R. Ecovillage lies within the Cowichan Valley regional district that stretches from Nanaimo to Victoria as well as from the west to the east coasts of the island (Economic Development Cowichan, 2008). The population of the district encompasses 77000 inhabitants and includes settlements such as Duncan, Cowichan Bay, Ladysmith, Cobble Hill, Lake Cowichan, Maple Bay, Crofton, Shawnigan Lake (Economic Development Cowichan, 2008). Among those, only Lake Cowichan, Duncan, and Maple Bay

belong to the Cowichan River watershed. Historically most of the population of the region was involved in agriculture and forestry (McGillivray, 2000) and it remains so till this day. The Cowichan Valley includes 600 small-scale dairy and vegetable farms, nurseries, and wineries. Eco-tourism with an accent on local food and wine tours is the growing industry of Vancouver Island and particularly so in the southern region (Linx BC, n.d.).

4.2. History of O.U.R. Ecovillage Development

The development of O.U.R. Ecovillage started long before the fist ecovillagers moved onto the land. The vision of an ecovillage was developed by a cohousing group established in Victoria, members of which were engaged in youth and community development:

> I've been with O.U.R. for over 29 years now prior of being on this site. 12 years ago we were city wide youth program in Victoria. So we are actually started out with the youth and community development focus. And then eventually as conversation went on and dialog about sustainability we realised that really what we needed to be doing was including all the environmental aspects of what the community was talking about (Site tour).

After long discussions and many hours of planning, five members stepped up to turn those plans into reality (Site tour). It turned out that sustainable community was more than just a group of enthusiasts and sustainable development was not just a set of practices. Brandy[8], the executive director and one of the establishers of O.U.R. Ecovillage, explains during the site tour how everything started:

> Our highest skill set was actually naiveté, an incredible amount of hope, and the fact that we didn't know what we didn't know is actually probably what got us through into a good bit of a start up of this place. (Site tour)[9]

There was not a lot of support either from family members, friends, wider community or local municipalities. The slogan ‘by the community, through the community and for the community’

[8] As was mentioned earlier, Brandy Gallagher gave me the permission to use her real name; all other names are pseudonyms.

[9] Please see Appendix D for the events and interviews dates.

sounded more like naïve dreaming than a guiding principle for a serious project. At that time the whole notion of sustainability was quite a novelty and the idea of a sustainable community was regarded as another type of utopia (Site tour).

> I have to say people never used the term 'sustainability' very often; it is very hard to believe now - it is all about 'can you fit it three times in one sentence' now. But in those days noticeably the kind of language we were using a lot of people were like: 'Wait a minute! What is this 'pie in the sky' kind of idea." (Site tour).

The actual design, planning, and development of O.U.R. Ecovillage can be broken down into eight phases. These stages are described on the community's website and ecovillage's handbook; however, they were not pre-determined or planned in advance, but emerged naturally throughout the development of the community. Besides, the community did not follow any guide or model for ecovillages as "in those days there wasn't the "how do you develep sustainability project' or 'how you develop an ecovillage" handbooks like there are out now" (Site tour). Thus, community members had to learn on the way and create their own model.

The first stage took place in March 1999 and entailed purchase of the 25-acre farm that was nearly sold for the development (O.U.R. Ecovillage, 2012). It took time and effort to persuade the owner of the land that the plan of a sustainable community was real and reachable. As a result he donated one third of the original price in order to preserve the land (Site tour). At that time the Creation Team of 14 members had started designing the project. The phase two lasted from 2000 until 2002 and included formation of a not-for-profit O.U.R. Community Association. The non-profit organization was established to ensure that the ecovillage would be developed as a demonstration and education site for sustainable development (SD). This stage was characterized by a dynamic and close participation with the local government and a wider community in the planning process. As a result the unique rezoning plan was developed during the third stage between 2002 and 2004 (O.U.R. Ecovillage, 2012). The Rural Comprehensive Development Zone (discussed in section 5.4.) encompassed organic farming, ecological education, land conservation, and environmentally-friendly residential housing (O.U.R. Ecovillage official website, n.d.-g).

The fourth phase, which started in 2002, is characterized by the establishment of the educational institute called TOPIA: The Sustainable Learning Community Institute (O.U.R. Ecovillage official website, n.d.-c). When the O.U.R. non-profit came up with the idea of

establishing a school on site, ecovillagers started documenting the development of the community. That information was later included in David Suzuki's documentary. That film was forwarded to the federal government and O.U.R. Ecovillage received enough funding for the establishment of TOPIA institute (Site tour). The school offered a wide range of courses, workshops, and internships on sustainable development, starting from organic food production and natural buildings and finishing with community development and permaculture design (O.U.R. Ecovillage official website, n.d.-a). The fifth stage commenced in 2003 with the beginning of Finance, Ownership and Governance (F.O.G.) Landshare Research Project (O.U.R. Ecovillage official website, n.d.-c). The Rural Comprehensive Development Zone required a holistic approach to land management, and F.O.G. was initiated to create a new hybrid ownership, financing, and governance model that would involve multiple stakeholders. During the sixth phase beginning in 2006 a group of specialists in ecovillage design established the Sustainable Community Development Cooperative (SCDC). SCDC provides consultation in the area of sustainable design and sustainable community development. At the beginning of the seventh stage in July 2007 as a result of F.O.G. research project, O.U.R. Ecovillage Cooperative (more discussion in section 4.4.) was created. The co-operative became an overarching governing body encompassing all other organizations in O.U.R. Ecovillage. The primary responsibility of the co-operative was to ensure multi-stakeholder ownership of the land as well as alternative consent-based decision-making. The last stage launched in 2008 was identified by a couple of projects. First, O.U.R. Ecovillage in cooperation with The Land Conservancy of British Columbia piloted the O.U.R. Commemorative Legacy Project - the first Conservation Scattering Grounds project in Canada. Second, the "Protect O.U.R. Ecovillage" campaign was launched in 2011 and aimed at gaining maximum support from individuals and organizations through ethical investment in order to transition towards community ownership and management of the land (O.U.R. Ecovillage, 2012).

More than 20 years of planning, 13 years of building, support of numerous organizations, and contribution of hundreds of people, that is what constitutes O.U.R. Ecovillage. The example of O.U.R. shows that a sustainable community is not just a group of people living together but there is first of all a clear vision and a common mission that unifies the group and sets clear

intention for development. Since the beginning, O.U.R. Ecovillage had clear objectives focused on SD that enabled the community to engage many stakeholders and move through the obstacles.

4.3. Vision, Mission, and Underlying Principles of O.U.R. Ecovillage

Intentional communities pay particularly close attention to the development of their vision and mission statement, which act as a compass for their development (Kasper, 2008). Vision and mission also play the role of a calling card that greatly defines the type of people joining the community. Therefore, vision and mission statement of a community are prone to being changed and adapted as the composition of a community changes (Christian, 2003). Whereas some intentional communities determine a very specific mission and vision statement and as a result a rigid set of rules, others agree on more general guidelines (Kasper, 2008). Although most of the ecovillages carry unique characteristics, sustainable living remains the intrinsic postulate of their development (Carroll, 2010). However, SD is a broad term that encompasses various aspects of a community living; therefore, every community has to draw its own agenda and define its primary goals within the frames of SD.

The vision of O.U.R. Ecovillage demonstrates the all-encompassing approach towards the community development: “Sustainable well-being for the land, ourselves, and our worldwide village” (O.U.R. Ecovillage, 2012, p. 3). The mission delineates the course of the ecovillage’s actions and its primary objective to spread the knowledge on sustainable living: “To educate, inspire and transform by co-creating a thriving learning community and permaculture demonstration site” (O.U.R. Ecovillage, 2012, p. 3). The vision and mission statement as well as guiding principles of the community are embedded in the description of O.U.R. Ecovillage:

> Intercultural, Intergenerational, Interfaith and Interdependent.
> O.U.R. Ecovillage is a sustainable learning centre and demonstration site which focuses on ecological ways of living involving permaculture design. We are dedicated to researching and modeling ways that are rooted in social, cultural, spiritual, economic and ecological well-being. As well, we actively create partnerships with groups and organizations that are interested in living in community and living lightly on the earth.
> O.U.R. Ecovillage is a sacred space where permanent residents and short-term visitors co-create sustainable community. We offer a protected green space in a

> healthy, supportive environment and contribute locally and globally ---in return we live, love, laugh and learn together as an intentional learning community, we are interdependent, viable and prosperous through our deep connection to ourselves, each other and the earth. (O.U.R. Ecovillage, 2012, p. 3)

Vision, mission and description of the ecovillage cover a wide range of values and principles that are the focus of the community's life such as inclusion, ecological lifestyle, equality, continuous learning, cooperation, spirituality, connection and respect for individuals and the Earth. The community expands the notion of sustainability based on the three-legged TBL approach by adding spiritual and cultural pillars to it. In spite of a common assumption that ecovillages are mostly concentrated on the 'eco' part of its development, vision and mission statements of O.U.R. Ecovillages show that the 'village' component, which implies the notions of a community, belonging and connectedness, is not less important. A gratitude circle before every meal, weekly council meetings, men's and women's circles, appreciation walks might seem for some just a nice addition to a daily routine. However, these and other activities practiced in the ecovillage create a sense of sacredness and connection that attracts most of the people to the community. A cooperative lifestyle that places high emphasis on spiritual and cultural aspects of a daily life is what strongly differentiates the ecovillage living from the mainstream Canadian culture. Successful implementation of all five pillars advocated by O.U.R. Ecovillage requires a value shift on individual as well as collective levels. Concepts that lie at the base of this shift will be discussed in more detail in Chapter 6. The rest of this section will elaborate some elements of the vision, mission, and underlying principles of O.U.R. Ecovillage.

Intercultural means that every "wanderer" is welcome in the community for a day, year or lifetime. Even though the majority of residents on site are Caucasian North Americans, many visitors as well as lecturers are international. During my stay in the community a First Nations' person was helping residents to process the wood and the following is excerpt from the interview with one of the ecovillagers:

> If you work beside him he will tell you the most amazing stories, amazing! And you will realize: oh, I thought I was just stacking wood, but I am actually in a healing process with someone, 'cause his stories and his culture that's what he brings. (Brandy, personal interview)

During my stay in the ecovillage I heard a few residents mentioning that the community is located on the land of First Nations people and that a few practices (such as the women's circle) were adopted from them. The community's guidebook also states Cowichan Tribes[10] as one of their affiliates (O.U.R. Ecovillage, 2012)[11].

O.U.R. Ecovillage does not have selection criteria for new members, and even though the integration process consists of a few stages, anyone is welcome to join and stay as long as they want:

> There is no restriction and it's based basically on interest, you know, people come - they are welcome. And the integration, like in the way of they want to live here, then there is a process: you visit for a bit, and you come again do some volunteering spend some time with us, and it is more about chemistry and, you know, how we like each other and it works for everybody. It's pretty much a self selective process, I don't think we've ever had to say "No, you can't be here, we don't want you.' You know, if it doesn't work for people then they just leave. They try it out for a while and then they find where they are challenged. (Anna, personal interview)

One of the intentions of the ecovillage is to provide space for everyone and help others to rehabilitate and/or find their place in a society:

> We've been involved in supporting people who have had challenges being employed or keeping employment. We had a number of people coming here who were homeless essentially, who have found a community where they could make a contribution, rebuild their lives and then move on. We need to be careful because as a community we need to balance how much we are supporting a person and how much they are supporting the community. But it is definitely part of a vision that I have: as the place grows is that we can support greater diversity of needs. […] And I think part of the core values and practice is that there is a space, unless somebody is obviously dangerous. I think it goes to permaculture principles "there is no away", you cannot throw the problem away and it disappears. So we have had experiences here where people have come in and had mental health challenges or

[10] The biggest First Nations Band in British Columbia with more than 4 400 members (Cowichan Tribes, n.d.)

[11] However, this study did not research the degree of cooperation and affiliation with aboriginal people. This topic could be investigated in a future research, as local knowledge can add important missing link to the current SD theory. As "indigenous knowledge together with the aspiration goals of postcolonial thinking can expand the capacities of the triple bottom line by enabling Aboriginal communities to engage new ways of telling their stories and arguing for change and development of policy – based on time-tested, cultural and spiritual ways of seeing and knowing" (Findlay & Russell, 2005, p. 96).

> whatever, and as a community we have worked that through, recognising that if to tell this person to leave they are still going to be in relationship and working through their journey with other people somewhere. So if it's a problem sending them off the driveway doesn't deal with the problem and might cost us an opportunity for growth and learning. So you can't kick anyone off the planet is something we were saying last year and I think that really represents how we can turn what can be seen as a 'waste' stream in our society into a resource whether it is on the level of a garden in the kitchen or a human level. So I think an integrated community creates a space where everybody's presence has value. (Victor, personal interview)

This interview quote shows that inclusiveness of the ecovillage should not come at the expense of the well-being of the community. So whereas the settlement gives everyone a chance to join the demanding lifestyle in the community screens out people who are not completely committed to it. Nozick (1999) believes that in a sustainable community there is a balanced relationship between the personal input and the communal output. Each member contributes to the collective life through work, participation, and support for others, and as a result the community provides every individual with a safe environment, relevant work and place of belonging – it is a two-way street. The community has a set monthly site fee that everyone living in the community has to pay. These fees cover community bills and a mortgage. Residents also have to pay the rent. Most of the people rent a room or live in temporary structures such as yurts, tents or trailers. Monthly meal plans are available but optional, and whether a person is subscribed for the meal plan or not, everyone is encouraged to eat together. These costs are not high but they might be an obstacle for some individuals to move on site.

Additionally, *interculturality* can also mean acceptance of various traditions and practices. During my stay in the ecovillage the diversity of the community was very low; however, due to the educational nature of the site and various events organised by the community it attracts a lot of international visitors. For example, for a couple of years, O.U.R. Ecovillage hosts marimba[12] festival (site tour). Ecovillagers also practice learning and borrowing sustainable practices from other cultures:

> We had a woman who is actually from Guatemala, but who did all her training in France […] The fascinating thing is she put a three inch body coat on the outside of

[12] Instrument that originates from Central America

> the bales and she fermented all these clays, got them brewing. It was a little bit of witchcraft 'cause they got that on the wall and they [walls] were growing […]. And after like seven days you could pound on it; it was hard as cement (Site tour).

> So imagine taking on with an engineer the whole idea of both earth and straw bale construction being approved within the building code. And then upping the ante to things like bringing in the stone crafter from Ireland who said: "Why do you guys put concrete into foundations? Come on, we build whole churches in the world that are standing without. It has manure mortar in it and they were standing for a couple of hundred years. So what is your big deal about concrete in this part of the world?" And you can only imagine the challenging conversation. But the fellow in his great Irish charisma convinces this guy if he builds plinths with post in it and sends a 200 pound guy up there to shake the posts and watch that the plinths stay together that he is in. So this foundation is eight dumped trucks full of hand-stacked dry-stacked stone (Site tour).

Intergenerational aspect, mentioned in the description, can be applied to the ecovillagers' consideration of the needs and wants of various age groups within the present generation as well as future generations. As observed during the fieldwork, the ecovillage lifestyle has been built around the importance of the community and family; therefore, balancing these elements seemed very important for the community. I often witnessed how parents attended community meetings with their children (and even a dog). Thus, children as young as four years old were not excluded from the 'adult world'. Furthermore, children were always welcomed to join work projects that were safe such as gardening, cob construction, helping in the kitchen, berry picking.

Interfaith stands for the inclusion of all belief systems. The ecovillage claims to be an ecumenical community, meaning it welcomes all religions (Fellowship for Intentional Communities, n.d.). People of various religious and spiritual backgrounds visit the community, and many people are willing to share their knowledge with others. Only during my fieldwork there was a possibility to learn meditation, yoga, and chanting from visitors and practice it on site.

Interdependent relationship with people and the earth is another fundamental principle of O.U.R. Ecovillage. The community underlines the significance of the following six principles for creating a healthy and productive living environment: responsibility for one's own feelings and actions; openness to the views of others; respect for people and earth; mutuality in sharing; honesty in feelings, words and actions; positive approach and fun as an important part of any

activity (O.U.R. Ecovillage, 2012). O.U.R. Ecovillage places connection with the earth as equally important as relationship with one selves and people. The residents treat the land as sacred space that needs protection and respectful attitude. This principle is vividly demonstrated in the O.U.R. Covenant for the Earth otherwise known as O.U.R. Statement of Sustainability. The Covenant for the Earth describes the specific code of actions in relationship to the earth as well as people and is summarized under the following headings: ecology of living; community living; voluntary simplicity; right livelihood; environmental action; spiritual practices; scientific understanding; cultural diversity; education of the citizenry; personal growth (O.U.R. Ecovillage, 2012, p. 5). These principles show how deeply the notion of sustainability is understood by the ecovillagers, where the reverent attitude for the self, others and the earth is the foundation of SD. And the details such as building practices, conservation strategies or decision-making process are built on the before mentioned principles.

O.U.R. Ecovillage defines itself as a sustainable learning centre placing particularly strong emphasis on the educational mission that implies research, modeling, and teaching. As was mentioned in the previous section, O.U.R. Ecovillage is involved in multiple projects and continuously offers various internships and classes. Moreover, the community is committed to being a demonstration site of an integrated sustainable living that includes all fundamental principles of SD. As the following quotes illustrate, ecovillagers perceive their community as a research laboratory that is devoted to educating the wider community:

> For O.U.R. ecovillage, educating the outer general public is a priority for the people here, just because of the huge impact it has on our world, on our culture, and we are finding that there is a real need for it here. (Olivia, personal interview)

> I know that it is our mandate to be an educational-demonstration site and it is in the covenant. So that will continue, as far as I understand, into the indefinite future. (Pam, personal interview)

Collaboration is also an important building block for the community. The importance of partnership is especially prominent in the motto of the ecovillage ‘by the community, through the community and for the community’. It projects an intricate dynamic system of the close cooperation among individuals, professionals, and organizations working together towards embodying a shared vision of sustainability. O.U.R. Ecovillage invested a lot of energy and effort into creating strong partnerships with numerous organizations in the region and wider

community. And it is the collaboration with private sector, academia, governments, and a wider community that enabled piloting of various sustainable projects, such as Rural Residential Comprehensive Development Zoning, and incorporation of numerous sustainable techniques, such as cob[13] buildings.

Permaculture design is mentioned in the vision and mission statement of O.U.R. Ecovillage and the importance of this paradigm is constantly emphasised in the community. As reported during interviews and presentations, permaculture principles are deeply embedded in the visible and invisible architecture of the ecovillage. In order to have the complete understanding of the community's mechanism, every resident of the settlement is advised to attend the Permaculture Design Certificate course that the community organises every year on site. A lot of SD practices implemented in the ecovillage that will be discussed in the next chapter follow permaculture principles; therefore, it is reasonable to take a closer look at objectives and principles of permaculture theory.

4.3.1. Permaculture Principles

The permaculture concept was developed in 1970 by Bill Mollison and David Holmgren as a positive response to the global environmental, economic and social crises (Mollison & Holmgren, 1990). As emphasized by Holmgren (2002), this notion was not a criticism of industrial development or consumerism but rather a set of principles that can be applied by every individual to start a personal transition to a more sustainable lifestyle. For the last few decades, the permaculture system expanded from the notion of permanent agriculture described as "integrated, evolved system of perennial or self-perpetuating plant and animal species useful to man" (Holmgren, 2002, p. xix) to the philosophy of permanent culture, that is defined as:

> [T]he study of the design of those sustainable or enduring systems that support human society, both agricultural and intellectual, traditional and scientific, architectural, financial and legal. It is the study of integrated systems, for the purpose of better design and application of such systems. (Mollison, n.d.)

Permaculture is an approach to manage and design human habitat based on the laws of natural systems (Bell, 2005a). Its principles are designed from the holistic understanding of the

[13] Building material made out of sand, clay, straw, and water.

ecosystems that maximizes the productivity and minimises work (Holzer, 2011). Permaculture intends to create stable, dynamic systems to satisfy human needs and increases well-being of the habitat. The main rule of this approach is harmonious coexistence of people with their environment (Mars, 2005). Permaculture focuses on using abundant renewable resources to restore natural capital (Holmgren, 2002). Many techniques are derived from natural patterns and mechanisms; observing and learning from nature is one of the main dogmas of permaculture (Mogen, 2006).

Permaculture was not created as an institutional science as it aims to reach every individual. It rather accents a bottom-up approach where every individual's choice influences local, national, and global levels (Veteto & Lockyer, 2008). Overall permaculture was designed to educate people about sustainable practices and self-reliant lifestyles to allow them to be independent of industrial systems (McManus, 2010). The theory and implications of permaculture are wide and can be applied to various areas of human life, such as agriculture, architecture, decision-making, infrastructure, and planning among others. Although a powerful and effective developmental strategy, it still remains ignored by scientists and mainstream practitioners (Veteto & Lockyer, 2008). Even though the number of practical guides and design manuals on permaculture is constantly growing, the discussions of this topic are practically absent in academic literature.

Permaculture integrated science as well as traditional knowledge to create a set of systemic concepts that latter evolved into ethical and designing principles (Holmgren, 2002). Ethical principles in permaculture form the foundation for its philosophy and create a strong base for its designing principles (Veteto & Lockyer, 2008). The main focus of the permaculture ethics is sustainable living without harm to the environment, and it can be summarized as "earth care, people care and fair shares" (Holmgren, 2002; Whitefield, 2005). Earth care means holistic approach to nature as a living ecosystem with its complex and diverse law. Earth is seen as a self-organizing system, and the damage of its fundamental systems can lead to devastating results first of all for humans themselves. This principle includes care for all living creatures and diverse eco-systems. It should not be based on usefulness or profit-oriented mindset but rather on the intrinsic value of the nature's elements (Bell, 2005b; Holmgren, 2002). Even though it

sounds very philosophical, this principle is based on profound down-to-earth understanding of "meeting [personal] needs while allowing other species to meet theirs" (Whitefield, 1993, p. 6).

Permaculture is built on the principles of sustainable development that embraces not only high yields and minimum ecological footprint but also care for each individual, community and humanity in general (Kolodziejski & Soutar, 2004; Whitefield, 1993). *People care* starts with care for the self and extends to families, local communities, countries, and beyond (Whitefield, 2005). Self-care means basing every action on the doctrine of personal responsibility. It builds on the importance of self-reliance and consumer reduction and not on the satisfaction of one's personal excess desires (Bell, 2005b; Holmgren, 2002). This principle derives from the importance of non-material values (Whitefield, 1993). Holmgren (2002) in his book *Permaculture: Principles and Pathways Beyond Sustainability* gives good examples on this principle: "When we enjoy a sunset rather than watching a movie, when we look after our health by walking rather than consuming medicine, when we spend time playing with children rather than buying them a toy, we are taking care of ourselves and others without producing or consuming material resources" (p.7).

The principle of fair shares includes limitation of consumption, control over population and redistribution of surplus (Holmgren, 2002). Consumption of non-renewable resources or overconsumption of renewable ones does have an impact on the general well-being of the planet and as a result influences every individual (Thompson & Coskuner-Balli, 2007). Therefore development of the country should not be defined by the economic growth and GDP, but rather by the well-being of the people, their impact on the environment and rate of consumption (Trainer, 2005). Fair shares embodies the understanding of limited carrying capacity of the Earth. Thus, permaculture philosophy emphasises that by connecting back to local resources people can achieve balance in population and consumption rate. In a nut-shell this principle stresses that healthy environment and sustainable lifestyle can be achieved only by using as much as necessary and redistributing the surplus (Whitefield, 1993).

Permaculture design principles focus on the holistic picture of an ecosystem whether it is a forest or just a backyard. It analyzes the connections between elements and offers solutions that can make a system more efficient and harmonious (Holmgren, 2002; Whitefield, 1993). These principles aim at creating "closed-loop, symbiotic, self-sustaining human habitats and production

systems" (Veteto & Lockyer, 2008, p. 51) that benefit humans as well as the environment. Design principles of permaculture are based on a few areas of ecology, predominantly landscape geography, systems ecology, and ethno-biology (Veteto & Lockyer, 2008). Because every place has its unique biological, geographic, and cultural features, permaculture does not offer strict instructions to be followed but rather proposes a design philosophy that can be adapted for each particular climate or place (Whitefield, 2005). Each of these principles should be seen as a guideline to be combined with local knowledge and specification of the area (Mollison & Holmgren, 1990). The following table lists 12 design principles described by Holmgren (2002).

Table 1 Permaculture Design Principles

Permaculture design principles	Brief description
1. Observe and interact	Recognising and learning laws of ecosystems and implementing them in favour and not against the nature.
2. Catch and store the energy	Long term investment in the existing resources such as soil, water, landscape, knowledge and skills insures well-being of the system and long-term profits.
3. Obtain a yield	Achieving the highest potential of an ecosystem in the present by increasing its functionality and efficiency
4. Apply self-regulation and accept feedback	Accepting positive and negative feedback, constant adjusting and improvement in order to create a more efficient system.
5. Use and value renewable resources and services	Primary use of renewable resources, considering non-renewable resources as capital assets. Independence from non-renewable external resources is aimed to increase the adaptability, resilience and transformability of a community.
6. Produce no waste	Creating cyclical model that incorporates waste, lost energy and degraded goods.
7. Design from patterns to details	Designing the system that will be self-organizing and self-maintaining, rather that learning the properties of every element in separation.
8. Integrate rather than segregate	Strategic positioning of every element so that it can bring maximum benefit for the system by producing necessary services or using by-products of others.
9. Use small and slow solutions	Smaller scale of implementation and a thorough design leads to a more resilience and flexible system.
10. Use and value diversity	Diverse systems more easily withstand changes and have fewer losses.
11. Use edges and value the marginal	The most intensive exchange of resources and energy occurs in the areas where two different microsystems meet, called edge effect.
12. Creatively use and respond to change	Changes and instability in a structure can be seen as a part of restructuring process that leads to more advanced system.

Source: Adapted from Holmgren, D. (2002). "Permaculture: Principles and Pathways Beyond Sustainability."

The goals of permaculture and SD can be seen as very similar, however, its methods of implementation (or absence of them) can be quite distinctive. For example, principles such as 'create no waste' can be placed within the aspect of the ecological SD and includes practices like recycling. However, some studies (e.g. Wong et al. (2007), Udani (2005)) show that recycling

itself produces dangerous toxic waste. The permaculture implication of this principle is much broader and purports to create a self-sustaining system that uses the 'waste' of some of its parts as a resource for others, therefore, eliminating the idea of 'waste' per se (Holmgren, 2002). In this regard, permaculture can claim to exceed SD in its holistic approach and systemic thinking.

Permaculture offers not only a philosophical approach to development but it also provides practical methods of organizing human habitat (Veteto & Lockyer, 2008). Therefore, it can be an answer of the main challenge of SD, which isthe absence of clear guidelines for the implementation (Berke & Conroy, 2000; Brown, et al., 1987; Parris, 2003). Ethical principles rooted in universal morality as well as design principles based on natural systemic thinking make permaculture universal, practical, and applicable to all areas of human activity (Holmgren, 2002).

Even thought sustainable communities claim to be guided by the idea of sustainability many of them are built either completely or partially following specific permaculture principles (H. Jackson, 2002; Veteto & Lockyer, 2008). O.U.R. Ecovillage is a bright example of such settlement, where some ecovillagers can show the permaculture principle in practice by taking a person for a tour around the site. I have noticed that many people in the ecovillage (residents, students or visitors) had only a vague idea of what SD implies, while at the same time showing a good understanding of permaculture principles and its application. The scope of my study does not include detailed analysis of permaculture principles in the frame of SD paradigm; however, it can be valuable future research.

Vision-mission statement, O.U.R. Guiding Principles, O.U.R. Covenant for the Earth, and permaculture principles demonstrate the underlying principles of the community that are rooted in sustainability. The principles encompass ecological, social, economic, spiritual, and cultural well being of the individuals and wider community as well as care for the earth. However, fulfilment of these fundamentals requires a strong organization inside the community.

4.4. Organization of O.U.R. Ecovillage

O.U.R. Ecovillage is a small but vibrant and dynamic community that intends to implement SD in all areas of community living. Consequently, in order to ensure fulfillment of

the ecovillage's objectives various organizations were set up within the ecovillage. They all work in close cooperation with one another as well as numerous research and educational institutions, industries and individuals outside of the community. Ecovillages do not have an official designation; therefore, O.U.R. Ecovillage does not exist as a legal entity it is rather a general name for the community that entails people as well as organizations established on the site.

The primary entities that sustain and govern the community are O.U.R. Community Association, O.U.R. Ecovillage Cooperative, and a group of the Hearthkeepers. O.U.R. Community Association, a not-for-profit, was the first legally registered organization of the settlement (O.U.R. Ecovillage, 2012). Its board of directors consists of residents as well as supporters who do not live on the territory of the ecovillage (Brandy, personal interview). The non-profit was created in order to ensure that the community follows its primary objective of being an educational and demonstration site for SD (Victor, personal interview). The mission statement of the organization portrays the latter: "To assist in the research and implementation of volunteer and community development that promotes 'Green Micro-Enterprise', ethically based/sustainable practices and youth entrepreneurship." (O.U.R. Ecovillage, 2012, p. 10). In order to achieve its mission, O.U.R. Community Association determined four primary goals. First, to research sustainable practices which are environmentally friendly, economically self-reliant, culturally sensitive, morally and spiritually universal, intergenerational and youth integrating. The second purpose is to offer educational programs as well as firsthand experience on the theory and practice of sustainable communal living. Programs, which particularly focus on the youth audience but are not limited toit , include organic food production, permaculture design, cooperative living, ecological practices and sustainable land stewardship. The third objective is to establish a demonstration site that shows harmonious integration of all aspects of cooperative living with particular emphasis on environmental economics, permaculture design and sustainable land management. The fourth goal of the non-profit is to create an arena for an interaction and discussion with the wider community in order to share experience, knowledge and expertise (O.U.R. Ecovillage, 2012).

O.U.R. Ecovillage Cooperative was created in order to transition from the single to multiple stakeholder tenure (O.U.R. Ecovillage official website, n.d.-d). The organization was specifically tailored to fulfill the holistic perspective of the ecovillage towards community

development (Victor, personal interview). O.U.R. Ecovillage Cooperative enabled implementation of a new hybrid model for " the multi-stakeholder and multi-activity structuring of ownership for the land" (O.U.R. Ecovillage official website, n.d.-c). Currently O.U.R. Ecovillage is in the process of transferring land ownership from the individual to communal proprietorship. The membership for O.U.R. Ecovillage Cooperative is open and anyone can join. There are five membership groups: Hearthkeeper Stewards, permanent residents of the ecovillage; Education Stewards, organizers of the educational programs; Agriculture Stewards, on site food producers; Sustainable Enterprise Stewards, on site entrepreneurs; and Community Stewards, supporters of the ecovillage activities. Hearthkeeper membership automatically entitles its owner to become a member of the board of directors, whereas other classes allow just one representative from the group to sit on the board. The decision-making within the co-operative is run by consent (O.U.R. Ecovillage official website, n.d.-c).

The Hearthkeepers is the core group of the ecovillage that consists of the long-term residents who are committed to be the stewards of the land. Whereas the Hearthkeepers represent a part of the O.U.R. Ecovillage cooperative they carry an important role of community stewards: "We consciously hold the heart-space at the core of our selves, our Community and sacred sense of place. We show up open hearted and present, offering our ongoing learning in the service of deep relationship." (O.U.R. Ecovillage, 2012, p. 11). O.U.R. Ecovillage is an educational site that attracts thousands of people annually; some visit the community for a day whereas others stay for years. Nonetheless very few people have committed to reside in the ecovillage permanently and it is therole of hearthkeepers to be the 'space holders'. The ecovillage has undertaken numerous projects and runs various education programs, and it is crucial for the community to have a strong core group that will stay committed to the mission and vision of the settlement.

O.U.R. Ecovillage is a wide-ranging community that aims to create a comprehensive developmental model that can be later implemented in other settlements, organizations and groups. The next section describes the governance model and decision-making system in the community.

4.5. Governance and Decision-Making in the Community

O.U.R. Ecovillage is in the process of transitioning to the dynamic governance model, also called sociocracy (Endenburg, 1998) or circular organization (Ackoff, 1989; Romme & Endenburg, 2006). This method is built on a series of circles all interconnected in the hierarchical ladder in order to balance participation and authority in an efficient way (Romme, 1997). The circular organization method is built on the consent principle (Romme & Endenburg, 2006), which should not be confused with consensus or veto-based systems. Whereas, consensus requires all or a majority of the participants to support the decision, the consent principle implies that none of the members has any paramount objection to the decisions. Veto-based decision-making allows a person to vote against the decision without any explanations, whereas with the consent-based organization, any objection should be rationalised and explained (The Global Sociocratic Center, n.d.). The sociocratic circular decision-making can be applied to any type of organization with different numbers of members. As stated by Romme and Endenburg (2006), this method was used in numerous organizations with a different focus such as consulting, health care, agriculture, education and production.

The circular organization process is based on four main principles. First, the consent on policy decisions should be achieved. This system allows the application of other decision-making methods for general decisions as long as all members agreed. Second, every member should be assigned to at least one circle. Every circle represents a team with a shared task objective. A team is autonomous in choosing a team representative, decision-making approach, and work schedule. The third principle implies a both ways connection between the hierarchical levels of the circles. Any circle is linked through an appointed functional leader and an elected representative, who are the members of the next higher level. Lastly, tasks and people are matched through a sociocratic election, meaning that voting should be openly supported with an argument (Romme, 1997).

The model applied in the ecovillage follows the mentioned principles of the sociocratic circular organization. Apendix A shows a snapshot of an organizational chart of O.U.R. Ecovillage. Every person who is on site for longer than a couple of weeks is assigned to one of the seven groups, which automatically includes that person in the decision-making process.

Every group has a degree of independence in making small operational decisions, whereas decisions that affect the whole community are brought to the General Circle by team leaders (Rachel, personal interview). Finalized decisions are reported to the boards of O.U.R. Community Association and O.U. R. Ecovillage Cooperative that have the right to veto a proposal or send it for reconsideration (Brandy, personal interview). Non-profit organization ensures that the community follows its primary objective of being an educational site for SD, whereas the co-operative monitors sustainable community development of the ecovillage. Overall the governance model seems quite complex for such a small settlement; however, it suits the needs of the community:

> Our governance needs here are fairly complex so that they are multilayered. We have a core long-term community, we have a larger group of people who are here for longer term but not committed to making a home here, we have students coming through in programs, we have volunteers and visitors. (Victor, personal interview)

> It [dynamic governance method] is quite like replicating nature on some levels: it is extremely complex but it runs by very simple principles. So you want complete interconnectedness, you want complete inclusion in people's voices being able to come through. It is fairly basic kind of elements that understand how that works and from there is all the complexities of 'who meets at what time for what meeting?' (Brandy, personal interview)

The following interview excerpts show that ecovillagers seemed very satisfied with this system. It proved to be more inclusive, efficient, and faster than the previously used consensus-based model:

> It is more flexible and faster than formal consensus, requires less training. Dynamic governance has the inbuilt principles of consent whereby every member of the organization no matter where they are in the hierarchy has defining input on decisions but it is less heavy and it is quicker. (Victor, personal interview)

> We are starting this new dynamic governance thing and I like it quite a lot. We have these general circle meetings and I feel like things really get done in those meetings. I am surprised, I have only been here like six months now, I am surprised how much say I have in things and how much responsibility and decision-making ability I've been given. (Sandy, personal interview)

> The dynamic governance system that we try to implicate since couple of months, I find that really really useful. Like those circles and that upstream and downstream system. […] I see an incredible benefit in that. (Rachel, personal interview)

Less formal decisions are also made through weekly community and council meetings. Community meetings take place every Wednesday during the lunch and follow a set protocol. These meetings are dedicated to informing the community about upcoming events, arriving or departing of guests and residents, calendar changes and updates. Simple decisions can also be made during the community meetings. Council meetings take place every Monday evening. Depending on the topic, the council can be 'closed', which means only ecovillage residents can be present, or 'open' for everyone on site. Not every meeting has a scheduled topic, but an emerging subject often becomes clear after everyone in the group 'checks in'. The Way of Council is based on the following principles: speak from the heart; listen from the heart; be lean of speech; keep confidentiality; use 'I language'; be spontaneous. Even though council meetings are not part of the formal decision-making process in the ecovillage, is it strongly advised that every resident and a long-term visitor participate in them. These meetings are considered to be an important tool for keeping social tapestry of the community strong, as the council format creates a space where everyone has a chance to speak out and be heard:

> Council circle is a circle of individuals. Every single person has an equal importance and power, and our value in participating there is in authenticity of our sharing: this is who I am, this is who you are and 'I see you', I witness your life movement and that space between us is what makes it real. That's the council circle; it is a circle. There is no hierarchy in a circle, and the circle is created by presence of individuals. (Victor, personal interview)

This type of communication again highlights the spiritual aspect of the ecovillage's lifestyle. Speaking and listening from the heart invites people to communicate in a non-judgemental, sincere, and compassionate manner. Council creates a sacred space where people can openly share their worries and concerns. Such communication helps residents to connect on a deeper level and create strong bonds with each other. Moreover, there is no hierarchy in the circle and everyone's voice has an equal importance. More discussion on this topic will be presented in chapter 6.

Council meetings are regarded as significant not only for keeping social relationship in the community healthy and strong, but also as an important step preceding the formal decision-making process in the ecovillage:

> I think they [Council meetings] help people to come to a sense of clarity about where their position is on things. And so in that happening when it comes to the

> actual decision-making people have talked about it, they have heard people's opinions and they, I think, feel more clear about what the issues are and what is really going on, as opposed to just like reading a document and then making a decision from there. (Pam, personal interview)

During my stay in the community some residents showed their concern that not everyone understood the importance of the council as some residents did not participate in it. As it turned out to be for some people, it was uncomfortable to be frank and open in front of the whole community, whereas others considered those meetings as extra and not important activity. However, most hearthkeepers regarded council meetings as a vital element of cooperative life in a community and regularly participated in them.

The dynamic governance model seems to provide a high level of inclusion as well as fast decision-making in the community. While ecovillagers had used this model only for a short period of time, they seemed satisfied, and, furthermore, empowered by this system, in spite of the its seeming complexity.

In order to truly understand all the intricate relationships that ecovillagers have with each other, the land, and external community, it is important to become a part of that living laboratory at least for a short time. The next section will describe one summer day from the chronicles of O.U.R. Ecovillage in order to immerse a reader in the life of sustainable cooperative living.

4.6. One Day in the Life Of O.U. R. Ecovillage: The Community's Life Through the Eyes of a Researcher.

It is close to 6.00 am and the first rays touch the tops of the surrounding forest, the days get noticeably shorter. It is beginning of September; the summer is soon to be over. Nonetheless, the weather is still warm and no rains have come to this part of the island, just nights get colder every coming day. Today I will look for an extra blanket and it will not be hard to find one as the generous spirit of sharing is undeniably present in this community. Before breakfast I follow my usual morning routine established after a month being here – going for a walk around the ecovillage. This is the only free time when I can wander around the property every time learning

something new. Most of the people are still asleep and the place carries the serenity of the early morning.

I walk on the narrow path that leads through the garden. It takes me through the berry patch. There are blueberries, raspberries, blackberries, and some sorts of other berries that I am not familiar with – this place is exploding with biodiversity. The other side of the path is full of nectar rich flowers that provide food for two beehives located down the valley. Passing by the raised veggie beds, I face two large greenhouses that in this climate can ensure food production almost year round. Before entering them, I notice almost ripe fruit on the nectarine tree that is growing right beside the cob bench – quite unusual fruit for this climate. However, proper design can really trick nature and numerous non-native species of fruits and vegetables grown in the ecovillage prove that. I am the first one to open the doors of the green house; the air is filled with the fragrance of basil, calendula, straw, and ripe tomatoes. Straw mulch on the ground prevents weeds from growing as well as keeping the soil moist and alive with microorganisms; after attending the Permaculture Design Certificate course a couple of weeks ago I am able to better notice how numerous elements coexist in mutually beneficial symbiosis and create a healthy ecological system. The solar shower and the laundry machine are in the far corner of the greenhouse, hidden in the lush greenery of the garden. Summer time the washing machine is working almost all day long as there are only two washing machines on site; the clothes are dried on the cloth-line as there is no dryer in the community. The water in the shower is warmed by the solar panels during the day; otherwise it is heated by propane. All the grey water from here goes through the series of the mulch swales down to the duck pond.

The water feature is purposely located on the territory of the fenced garden to host the special breed of ducks that eat slugs so abundant in this part of Canada. Besides being a source of meat, eggs, milk, and materials such as wool, most of the animals play an important role in the everyday maintenance of the site, and ecovillagers definitely appreciate their help:

> Any idea why people want chickens in the garden? Bugs, pest management - big time, a weeder, fertiliser, produce eggs while they are doing it. Total clean-up crew, they aerate the soil, they scratch the soil up, they pretty much work like 18 hours a day, they never form a union, they are totally about community, they never go on strike, they are awesome to live with on your team. (Brandy, site tour)

On my way I have a chance to see all of them at work: chickens are already out of the coop house, which is attached to the fruit orchard, meticulously scratching the ground in search of bugs; pigs are in the pan finishing the scraps of the yesterday's dinner; ducks are proudly walking around the pond in search of slugs; sheep are working on keeping the grass short, they have all the freedom to move around the large fenced area that includes pasture lands and forest; and Bossy, the only cow on site, proudly promenades around the field. Besides providing milk for the residents, it seems to be an inalienable part of the ecovillage's image.

I close the gates of the garden behind me to make sure that deer and other animals do not get inside and step on the pathway that leads me to the field. Sheep have already occupied a Vision Hill, a small elevation on the site that invites people to contemplate the view of the settlement and the surrounding forest. The hill is often used by ecovillagers for various ceremonies and special events – that place induces the feeling of reverence. I pass by the library yurt that is often used for meetings, gatherings, and sometimes even dorm space. A hundred meters ahead of me is one of the favourite gathering places of the ecovillagers – a bonfire pit surrounded by logs. Many evenings were spent around the bonfire playing music, sharing life stories, and building plans. The small pond behind the fire pit makes this place especially magical.

Hardly noticeable is the tiny green yurt lost in the verdure of the forest; a hundred square feet of living space seems enough for two adults, two children, and a rescued retriever. Small-scale housing is a priority on site as life in the community allows facility and resource sharing. However, the yurt is a temporary shelter as the family is waiting for their permanent house to be built. The settlement is still in its early stage of development, and even though after years of planning and deliberating most of legal formalities were finalised and the ecovillage has received permission to carry on with the innovative sustainable practices, it will take time to turn plans into reality as the inclusive process of co-operative living is time-consuming. It takes a village to raise a child; it might as well take a community to build an ecovillage. I can see tons of windfall timber on my left, all donated by the local logging company that was happy to get rid of 'waste' materials – one man's trash is another man's treasure. The logs will be milled on site and used for the construction of natural buildings.

The path turns left and passes by another yurt that is used by visitors during the warm time of the year. There is another tiny construction deeper in the forest, called Gingerbread House, made out of reused wood and salvaged tarp, it also serves as a seasonal shelter for visitors. I pass by Freya's house, the first out of nine planned houses for the residents. It is still under construction and in a couple of hours it will be filled with natural building professionals, interns and volunteers. This will be my learning classroom in the afternoon as I will join the team of plasterers. The rainy season will start soon so the construction team gladly welcomes any extra pair of hands. The pathway leads me around the pond. There is a family of geese waiting their time to depart south. A mother is still teaching youngsters how to fly. One of the interns told me that yesterday was the first time they took off from the water surface. A bit more practicing and they will be strong enough to travel to the other hemisphere just to return back to the ecovillage next year.

I pass by the small trailer park with the couple of vehicles and a straw bale composting toilet. In front of me is a large classroom. It was an agricultural building located on the small scale farm near the city of Duncan. The ecovillagers participated in the campaign to save the farm from being sold for development. However, the small group of people could not stand against the power of a chain store. The building on site is the only thing that remained from the farm. One of those buildings was divided in half and brought to the site with the help of Discovery College's building program and other schools. The roof from the building went on the side of another community structure, whereas the building itself was used for a storage; the classroom space was built on the second floor. Six days of the timber frame workshop and the walls were filled with woodchips, straw, and clay infill. Brandy sounded really excited talking about how incredible the power of the community can be:

> So we are on the tour and […] a Catholic home school church group said: "Can we help on your class-room? This is really great space for us to come and use and it could be like a school project for us". We said: "Sure! What [have] you guys been into, what do you know, what do you do?". And one guy said: "Well, I own Nanaimo Truss Company; I can make you trusses." Not only he did the trusses but he stayed all the night in to the dark in the Friday night putting it up. So even the crane driver was like: "Oh this is really fun, let me help!"

This building was called Taj II and it is located right next to the big barn and Taj I, the crafts workshop space.

I pass by the Chillage, the open space made out of cob benches and walls, covered with the reused wood. It is a place to connect to the global internet world, relax in front of a fireplace or have an enlightening conversation over a cup of tea. Right next to it is a new Zero Mile Eatery, still under construction. The name of the building is not accidental, as this place will offer food right from the garden to the plate. Moreover, the house will be constructed with all natural and reused materials, self-sufficient in electricity, and produce minimum waste. Yesterday I was dividing the bales to fill in the walls on the second floor, where the office space will be located. In the ecovillage the saying 'every day is the school day' can be understood literally; being here for over a month seemed like I could barely keep track of all the activities occurring on the site. The path goes through the picnic area down to another pond. There is a wooden sauna on the right and a Sanctuary right in front of me. This is the first natural building in Canada monitored by the local government.

I can hear the sound of the horn, it means that the breakfast will start in 15 minutes. Bed and Breakfast, the building inherited with the land, was waking up as I could see people coming out on the porch. There can be from 20 to 200 people on site simultaneously depending on the season and event. Another 15 minutes until the beginning of one more busy but never boring day. Two horn sounds mean that the food is ready. All the meals in the ecovillage are shared and depending on the season are either eaten inside or outside. Even those people who are not signed up for the monthly meal plan and prepare food for themselves are encouraged to join everyone in the common area; bonding and connecting is an important part of community development. The outdoors kitchen area is filled with the morning sun and some folks are already enjoying a simple breakfast of oatmeal, quinoa for gluten free diet, fresh fruits, and yogurt. Someone is frying eggs with bacon – except for the rush hour everybody is free to assist themselves in the kitchen. Morning is a good time to have a nice conversation with each other, and the topics vary from global financial crisis to the dietary choices. I have to finish my breakfast on time as this week my chore is breakfast clean-up. Everyone who is staying on site is encouraged to actively participate in the life of the ecovillage; it includes common meals, decision-making, and everyday chores among other things. Whether visitors are staying in the community for a week or a year, this policy gives them the feeling of inclusion and responsibility.

At eight o'clock the mood of the picnic space changes to strictly working. Gardening and building teams gathered for the routine morning meeting. Today I will be helping the gardening team for a couple of hours so I am joining them at one of the tables. The meeting starts with the check-in where everyone shares how they feel and what they are ready to bring to the group today – 'people' always come before 'business'. Then the leader of the team calls for volunteers for the appointed tasks. I sing up for picking up salad greens and weeding raised beds. For me time in the garden means a lot of sun, good conversations, and useful hands-on experience. Organic food production with an emphasis on permaculture design is a lot of planning and thinking through but in the long run it requires less maintenance, enriches the soil, strengthens the ecosystem, and produces nutrient-rich produce. 'Lazy man farming' is how it is called in here. This summer there are six interns enrolled in the four to six months organic food production internship. The program includes various theoretical courses as well as the whole growing season firsthand experience. I leave the team at ten o'clock to head to the 2012 Programming meeting.

A small group of people have gathered in the Chillage to plan the educational programs for the upcoming year. Workshops, internships, yearly as well as seasonal events, all should be meticulously programmed with the consideration of instructor's availability, previous students' suggestions and ecovillagers' schedule. Only during one month of my stay, I have witnessed a two weeks' Permaculture Design Certificate (PDC) course, numerous school groups visits, Baha'i youth visit, Cob in the Garden two days workshop, Children's Dance Camp, Nourishing Food Crafting workshop, weekly site tours, and four months' Natural Building and Sustainable Food Production internships. Today's topic is planning for 2012 PDC course. I attended the same course just a couple of weeks ago in order to obtain a clearer understanding of visible and invisible processes implemented in the development of the ecovillage. It was an intense 14 days' workshop that was led by two off-site instructors, and included 14 on-site and off-site guest lecturers, fieldtrips, movie nights, and hands-on experience. The topics that were covered during the course varied from ethics principles and social permaculture to earthworks and bioregional design. The course's syllabus is different every year as it depends on lecturers. The Programming team sets preliminary dates for the 2012 PDC course and everyone goes back to their tasks. I am heading away from the ecovillage's social centre to have an interview with one of the residents.

I came just on time to assist Karen with stacking the wood. There are local as well as visiting kids playing around and our conversation is sometimes interrupted by one of them asking a question or proudly showing a caught garden snake. There are only three kids who live on site permanently. All of them are either enrolled or will shortly join the *Waldorf School* some 15 kilometers north of the settlement. The kids are carpooled to and from the school in one car. I ask Karen whether there is a plan to organize an on-site school and she replies that so far it is not in the plans as there are not that many children in the community, but nonetheless, the youngest ones are constantly home/community-schooled simply by living in the settlement. And I can see what she means when the seven year old scrupulously explains to one of the adults the difference between stinging nettle and deadnettle. The sound of the horn reaches the valley – time for lunch. We have finished our work as well as our conversation just in time.

There are a few guests on site that came for a visit. They have been introduced during the lunch and it turns out that both couples are from other Canadian ecovillages, one of wich is only in the forming stage while the other exists already for a couple of years. O.U.R. attracts different people either out of curiosity or in search of knowledge, inspiration, and firsthand experience. At the same dining table, I witnessed a PhD, a monk, an architect, a high school student, an unemployed single mom, a five year old, a restless traveler, and a grad student all sharing the meal, private stories, and acquired knowledge. I leave the table after a half an hour exciting conversation with a sustainability instructor to participate in a Hospitality Team meeting.

The Hospitality Team consists of just a few people yet they have a lot of planning and preparation to do as September will be a busy month. The peak of the season in the ecovillage will be marked by the following events: GMOs Symposium as a part of Cowichan Valley Wine & Culinary Festival, Earthdance International, and Canada World Youth events, each bringing hundreds of people on site. Everything from a menu to dorm space should be carefully planned beforehand, and it will take more than one hour meeting to finalize the details. Ecovillagers joke that all they do is attend meetings. Well, today there are another two meetings of the Fundraising and Outreach group and Livestock team. I will not attend those as I am heading to the Freya's house to get my hands dirty and learn some plastering techniques.

Freya's house is named after the four year old ecovillager whose family plans to move to the house in a couple of weeks. There is a lot of work to be done but slowly things get together.

The plastering is not finished and most of the materials used in the construction are still visible. The building reminds me a children's play-house built out of scraps: cob walls of the first floor composed out of clay, sand and straw; siding of the second floor made out of the 'left over' cedar donated by the local construction company; damaged dry wall, which would have cost a company $200 a ton to ship off the island, is used upstairs; a pile of the styrofoam blocks/tree seedling trays salvaged from the local nursery, which cannot be recycled and had been mounted up for years in the junk yard, were safely sealed in the floor of the building; pure silk clay, a waste stream of the gravel excavation, was eagerly brought by the mine industry located on the island and became a perfect base for the finished plaster. A couple more weeks and the building will turn into a beautiful living structure and it would be very hard to imagine that it was built out of scrap materials.

Working on Freya's house as well as being a part of the visiting groups it was interesting to observe people's reactions to this structure - many were amazed how such a beautiful, affordable, and healthy house could have been built out of salvaged, reused, and natural materials. I have to admit it is not the easiest or the fastest process: thousands of hours of planning and work, hundreds of hands, tens of donors and numerous permits, this is the real cost of the building. And it is hard to deny that all those factors could have come together only in the community setting.

I rolled up my sleeves and dived into yet another learning experience. Surprisingly, the plastering process started in the kitchen where we had to prepare the wheat flour base for the mixture. Our group of amateurs could not 'knead the dough' from the first attempt but the second try was successful. Next, the recipe called for clay, sand, cattail fluff and natural pigment. As a beginner I was trusted to plaster only inside the wardrobes so the colors for today are yellow and white. All ingredients are thoroughly mixed together until the right consistency is achieved. The plaster should be soft and wet to be evenly spread on the wall with the trowel, yet sticky enough to firmly attach to the wall. This consistency should be kept constant throughout the work; therefore, the water is periodically added to the mixture. Some explanations, a bit of practice, as well as a couple of mistakes and at the end of the day I was called a 'plaster master'. Definitely I was far from being a professional but plastering turned out to be easier than it seemed. As I was told by one of the builders on site, this is one of the advantages of natural

building, it does not require everyone on the team to be a highly skillful person. The right formula for a successful ecological construction is a combination of an experienced professional and a group of enthusiastic folks who are willing to have fun and get their hands dirty.

My next stop is the kitchen. I have promised one of the cooks to help her with the dinner preparation. My primary task today is to bake vegan gluten-free cookies for a couple of people on special diets who could not have enjoyed the dessert prepared the day before. Cooks in the community try their best to take into consideration all the dietary restrictions/preferences of the residents and visitors. During one of the group visits, the list of products that should have been avoided reached 16 items, whereas the number of people on the site was more than 60. Food choice is currently a burning topic in the ecovillage: organic versus conventional, genetically modified versus natural, vegetarian versus omnivorous, local versus imported.

During the Permaculture Design Certificate course, everyone was invited to participate in the open council meeting and express their opinion regarding the topic of meat consumption. At that moment it was an important question as three pigs raised on site were scheduled for slaughter and a few residents called for diet reconsideration in the community. The ecovillage raises chickens, turkeys and pigs and is completely self-sufficient in poultry and pork, a part of which is exchanged for beef. There are a couple of vegetarians and vegans on the site but the community has decided to offer omnivorous options as well, in order not to discriminate against anyone. The O.U.R. Eaters' Food Manifesto portrays the inclusive approach residents have towards their dietary choices: "We prepare and offer primarily plant-based food options to our guests. In line with O.U.R. guiding vision, we also give thanks for some compassionately-raised animal foods in O.U.R. meals.[…] We are all Eaters, We are all Eaten. May we all be well." (O.U.R. Ecovillage official website, n.d.-f).

Another dimension of the 'food issue' was recently addressed by one of the residents and this time the 'to be or not to be' question targeted genetically modified organisms (GMOs) and non-organic produce. The evening before, residents were called for a community meeting to discuss the ecovillage's food policy. Whereas all food grown on the site is organic, it is not possible to feed thousands of visitors from the relatively small onsite garden. At the same time to offer completely organic meals will cost much more for residents as well as interns and visitors; moreover, this option will greatly decrease the food variety. An even more acute issue is GMOs.

Luckily, the ecovillagers discovered that there are only a couple of products on the Canadian market that are genetically engineered and those are completely avoided in the common kitchen. Animal feed, however, is not monitored so closely. And the latter remains a problem, as organic animal feed is very expensive. The third aspect of the 'food question' is the unsustainability of imported foods. These are not simple decisions and greatly depend on personal finances, motivation, considerations and time of the residents. The meeting was just a prelude to a much deeper discussion on food choices in the ecovillage.

Today during the 'Deconstructing Dinner' meeting, the community discussed in more detail the main products used on site. Everybody was welcome to express their opinions and offer suggestions; nonetheless, people were warned to be cautious not to bring out propositions that they would not be able to execute. The community agreed to eliminate imported foods such as bananas, chocolate and coffee from the common budget; however, residents can purchase those products individually. Second, the ecovillagers decided to increase the amount of organic produce preferably bought from small scale local farmers. Third, the ecovillage considered becoming a GMO-free zone, and a couple of individuals volunteered to proceed with this idea by preparing reports and facilitating discussions. The next episode of the 'food question' will unfold in a couple of weeks during the GMOs Symposium organized by the ecovillage as a part of the Cowichan Wine & Culinary Festival. The event will bring together a panel of experts and food enthusiasts to converse on the topic of genetically engineered foods.

As the 'Deconstruction Dinner' comes to an end, a group of women heads toward the Healing Sanctuary, a cob building with a couple of dorm spaces and a meeting room. Every Thursday all ladies in the community are welcome to join Women's Circle. During the women's circle females of all ages gather to share their thoughts, worries, and hopes. There is no chosen topic for the evening but as everyone 'checks in', the common subject usually is clear; otherwise the round continues and everyone is welcome to share whatever they wish. The setting reminds me of the picture of old times when the women of a community would get together during the cold winter evenings: someone is knitting, others spin the wool or crochet. The circle creates an atmosphere of trust, support, and belonging. Ecovillagers understand that community spirit is not something that can be encoded in the agenda of the settlement but it should be built, deepened and constantly nourished. Very often the most important discussions as well as the essential

agreements take place not in a formal setting but in the environment like this, where everyone has left their masks behind the door and feels strong enough to be themselves. And it seems it is these constantly nourished relationships that help the ecovillage to withstand all the financial, social and legal challenges and keep growing and inspiring others. Reweaving the social tapestry is at the center of the community and ecovillagers agree that it is not an easy task to do it in an individualistic North American culture. But looking in the faces of the women with whom I have shared a space today only for a few hours, I feel a deep bond and feeling of being accepted, the same attitude is seen in the eyes of the others. The Women's Circle finishes with the round of 'check out'. We wish each other good night and step in the darkness of the night.

Millions of stars are scattered in the endless sky. The Milky Way never seemed as clear as here. I am trying to find my way in the pitch darkness. A group of high school students has suggested installing a small solar street light on the 'junction' here, and the foundation was already set. I definitely agree that this is a great idea, another proof that two heads are better than one. The dim light of the bonfire and guitar music coming from the picnic area signifies that some people are still enjoying their leisure evening. In the ecovillage, the hard day is generously rewarded with a nice company, live music, a good conversation around the bonfire and a glass of wine (as alcohol is prohibited during the working hours). And as many ecovillagers say, it is this feeling of belonging and sense of community that makes all hardships insignificant and brings the real meaning to the term 'sustainability'.

4.7. Summary

O.U.R. Ecovillage is shaped by various internal and external factors. First, bioclimatic characteristics of the region determine the natural habitat and influence the practices in the community, such as architecture and construction techniques. Second, the history of the ecovillage's development shows where the community has started from and what was accomplished throughout its lifespan. The vision, mission and underlying principles of the ecovillage define the basic pillars of the community development, whereas the organization of the settlement frames the governance system of the ecovillage. And lastly, a description of a day

in the ecovillage life draws a general picture of what it means to implement vision, mission and guiding principles determined by the ecovillagers into a daily life. The next chapter will describe in more detail sustainable practices implemented in O.U.R. Ecovillage, according to the Agenda 21 criteria on sustainable human habitat development.

CHAPTER 5: RESULTS

5.0. Introduction

This chapter provides results on the sustainable practices integrated in O.U.R. Ecovillage. The results are grouped according to the eight criteria described in Agenda 21, Chapter 7 on Promoting Sustainable Human Settlement Development. The results obtained through the analysis of the documents, field notes, interviews, research photography and a focus group session reflect on the sustainable practices implemented in the following areas: provision of adequate shelter; human settlement management; sustainable land-use planning and management; integrated provision of environmental infrastructure; sustainable energy and transport systems; human settlement planning and management in disaster-prone areas; sustainable construction industry activities; human resource development and capacity-building for human settlement development. This chapter also deliberated on the challenges faced by ecovillagers in the before mentioned areas of development.

5.1. Provision of Adequate Shelter

> The objective is to achieve adequate shelter for rapidly growing populations and for the currently deprived urban and rural poor through an enabling approach to shelter development and improvement that is environmentally sound (United Nations, 1992, chapter. 7, paragraph 7.8.)

Shelter provision is a burning question for O.U.R. Ecovillage. Currently there is a distinct lack of permanent housing. Various buildings on the site such as Bed and Breakfast, Art Studio, Healing Sanctuary, and some temporary structures provide enough space to accommodate around 20 people throughout the year (Linda, personal interview). During the warm season visitors and interns use the camp ground, trailer park, and yurts. However, the situation is not stable and there is always an open question regarding the accommodation (Mandy, personal interview). Nonetheless, most of the interviewees did not show concerns about the slow pace of shelter construction on site, as the community priority was income-generating structures such as a class room and an eatery (Victor, personal interview). Ecovillagers contributed a lot of time,

effort and finances into developing the new zoning, which will be described in detail later in this chapter. The Rural Residential Comprehensive Development (RRCD) zoning allows a cluster of nine sustainable buildings. More specifically the zoning allocates 260 square feet per person, thus, the housing cluster is able to host approximately 25 residents. During my stay in the community the first out of nine planned houses was almost completed (photo 1). Construction of another two residential houses was planned for 2012.

Photo 1 The First Residential Building on Site.

Agenda 21 emphasises the integration of alternative construction and financial models as tools to enable equal access to healthy and affordable shelter (United Nations, 1992). O.U.R. Ecovillage applies various models and techniques that significantly decrease the cost of housing. First, most of the materials used for the construction on site are reused, recycled, donated, salvaged, or locally extracted natural materials:

> Redirecting waste streams, recycling building materials, some of the buildings are covered with cedar shakes, cedar shingles that were recycled from the dump, from the throw-away pile, from the other buildings that got new roofs. The timbers, a lot of them were donated from the logging company that was gonna burn them. We try and use things, unless it is toxic or clearly inappropriate, as many times as possible until it hits the waste stream. (Victor, personal interview)

Photo 1 shows Freya's house, is the first of nine residential buildings on site and planned for two families. The main materials used for the construction of the building were clay, straw, sand, stone, salvaged wood, styrofoam blocks and other reused or recycled materials.

Another important component of the affordable housing in the community is labor input that comes through volunteers, workshops, and internships. Natural building allows unskillful people to contribute to the process at most stages:

> The idea with natural building is very much that it is very approachable. People can join into the process of building very easily, specifically with cob and straw bale. You can have a series of really good work parties; you don't have to have very high special skills. If you have a couple of skilled people that lead we can really bring in people who don't have skills, which saves a lot of money. (Anna, personal interview)

Photo 2 The Cob Root Cellar

Photo 2 demonstrates the cob root cellar that was almost completed after a few short workshops and volunteering work parties. Materials used for the construction were wood, straw, clay, sand,

stone and used tires. Some of the participants did not have any knowledge of or experience in construction, and even children as young as four years old participated in the process.

Third, the ecovillage is focused on small-scale housing as life in a community setting allows resources and facilities sharing. Small-scale infrastructure is more sustainable in terms of financial cost, maintenance cost, and environmental impact:

> If you take laundry and other food storage like freezers out of your house designs and calculations on your energy needs, you just totally changed the equation. In a study like this where you can scale jump things because you have so many buildings beside each other, you can actually move food storage into walking freezers down in the barn. Makes sense. We produce most of our food on site for at least the site people, so store it collectively, have your little bin with your name on it, go shopping down in the barn and get what you need […] So pretty local, low carbon foot print - walk down there and get it. Same with your laundry. Does everybody in a nine-house cluster need a washer and a dryer in their house? Hope not. If we can all manage to walk as far as the barn, we can actually buy a really u-la-la skookum laundry system, pour some resources into something that gonna last instead of having cheaper systems in every house. (Brandy, site tour)

Agenda 21 also emphasises the construction of ecological buildings via the collaboration of individuals, groups, and public institutions (United Nations, 1992). O.U.R. Ecovillage actively cooperates with the government and various organisations to produce the most affordable housing model:

> The strategy has evolved to develop the housing as an affordable housing development partnership with the government, with whoever else is in: with the local communities, businesses, and corporations (Victor, personal interview).

> There is a whole bunch of negotiations going on right now with the Fuller Center for Housing around creating affordable housing buildings here, houses, in cooperation with local both suppliers of materials and also local business, local support from volunteers, churches and whatever. So that's supposed to start next year and perhaps build one or two houses like that. So this is similar model [to] what Habitat for Humanity[14] uses (Anna, personal interview).

The community is currently in the process of transitioning to the multiple stakeholders land ownership. The new model was developed under the Finance, Ownership and Governance

[14]The Fuller Center for Housing and Habitat for Humanity are both international non-profit organisations dedicated to shelter provision for poor. More information on the organisations' official website fullercenter.org (The Fuller Center for Housing, n.d.) and www.habitat.org (Habitat for Humanity, n.d.).

(F.O.G.) Landshare Research Project and funded by The Notary Foundation, Agriculture Canada and The Real Estate Foundation (O.U.R. Ecovillage official website, n.d.-d). The multiple stakeholder landownership model intends to decrease the pressure on the house owners to contribute any specific amount of money for the land tenure, as the whole site will be owned by O.U.R. Ecovillage Co-operative. Cumulatively, the mentioned techniques considerably decrease the price of the housing on site and make it not only more affordable but also healthier for the residents and safer for the environment:

> Imagine hundreds of people, thousands of contributions, lots of regulatory work coming together to change affordable housing . […] This is the building for six people [see photo 1]: three adults and three kids. One is a mom who is coming from immigrant refugee situation and would never probably have the money to live in her own home but who can actually jump in here and help with the construction of her own space.[…] Anything we can put in here that comes through volunteer or contributions, it lowers the cost of the affordable housing. To get this building to fully lock up and close, it is about 1200 sq foot building, is probably about $80 000, a big part of it is engineering and regulatory processes. (Site tour)

O.U.R. Ecovillage strives to combine as many tools and techniques as possible in order to reduce the price of buildings on site and at the same time make it more ecological and healthier. However, there are multiple challenges that the ecovillagers face in providing affordable shelter. First, the new ownership model places the community under a high risk according to financial institutions. As a result, it is very challenging to obtain a bank loan for the further development (Site tour). The second challenge is the lack of residents who are fully ready to commit to the community both financially and emotionally (Focus group). Finally, all projects have to be worked into educational programs, which involve capital funding and off-site labor, that at times slows down the construction process (Neil, personal interview). Nonetheless, in spite of challenges, residents of O.U.R. Ecovillage have built a number of demonstration buildings that are healthier and more affordable than conventional structures. It is important that communities like O.U.R. Ecovillage show an example and share techniques of an adequate shelter construction in a Canadian context.

The next section describes human settlement management implemented in the ecovillage.

5.2. Human Settlement Management

> Developing local strategies for improving the quality of life and the environment, integrating decisions on land use and land management, investing in the public and private sectors and mobilizing human and material resources, thereby promoting employment generation that is environmentally sound and protective of human health. (United Nations, 1992, chapter 7, paragraph 7.16.d.)

Human settlement management criteria of Agenda 21 primarily focus on urban centers. Only a few activity guidelines can be applied to rural small-scale settlements. They emphasise the establishment of necessary conditions for the development of environmentally sound employment and support of rural-based and small-scale economic activities.

The RRCD zoning developed by O.U.R. Ecovillage permits unlimited agriculture and private businesses on site that allow employment of all residents and a couple of people from outside. A few residents have their own private practices in the areas of consulting, health and wellbeing. According to the executive director of O.U.R. Ecovillage, the community employs the largest number of residents in comparison to other ecovillages in Canada (Brandy, personal interview).

Photo 3 A Room For Rent in a Cob House

O.U.R. Ecovillage is a demonstration site for sustainable development with a strong education mission. As a result, a big part of the community's income comes through educational programs. School groups, workshops, internships, site tours, work parties, and festivals bring money in the community that helps to cover some of the community's expenses. Other income in the ecovillage is generated through tourism and hospitality services such as Bed and Breakfast and camping. Photo 3 shows a room for rent in the natural building with cob walls and earthern floor. Space in the community is also rented for celebrations, child birth and weddings.

As the following quote illustrates, social and economic exchange with the wider community is an essential part for the survival of the ecovillage:

> The economic self-sufficiency, the degree to which we can have an internal economy is in relation to what our relationship to the surrounding economy is. We can have an internal economy if we have a large exchange with the surrounding economy; if that exchange is small, we have limited options for the internal economy. So if we had a small group of residents living here long term with minimum visits and tours we would have to work off-site to be economically self-sufficient. And the costs associated with that are primarily the ownership of the land and at the moment some food. If we have larger numbers of visitors and students and people coming to be inspired and to share the resource, they bring in economic resources, which create a greater possibility for internal economy for the residents. So somewhere in the system it needs to be an exchange with the surrounding paradigm (Victor, personal interview).

Another large income source is funding that comes from various agencies. Being a demonstration sustainable site, the community has a chance to receive grants related to SD:

> There are certainly a lot of relationships with contractors and building supply places, and that kind of thing by the way of donation, and people contribute time and energy here. We have funding from CMHC[15], the real estate foundation, we've had government funding for job placement, we have had funding for interns. Big programs, smaller programs, it is like ongoing; there is always grants taking place here that are funding different projects and different pieces. So that is a really big piece of the income at this point. So we are trying to get less dependent on grants 'cause they are less and less available but that's still a big piece of funding here. (Anna, personal interview)

The community is concerned about its dependency on the outside funding. That is why the ecovillage's primary focus at the moment is on providing income generating infrastructure such as eatery, dormitory space, and a class room:

> Well, the Community Commons building we are working on will greatly improve this place because it gives us means of generating income. And finishing Taj II for dormitory space and rentals, that would really generate more income. And so those two spaces that infrastructure is really key; I feel like that is why there is a strong push to get those completed. (Neil, personal interview)

---

[15] Canada Mortgage and Housing Corporation is a Canadian housing agency that was initially formed to assist shelter provision in a post-war time. For more information, visit the organisation's website www.cmhc-schl.gc.ca (Canada Mortgage and Housing Corporation, n.d.-a)

Many interviewees expressed the assurance that once the community develops its infrastructure, more possibilities for on-site income-generating activities will be created. Some interviewees suggested that aside from educational and touristic possibilities offered by the community, ecovillagers can launch their own personal businesses in the area of health, food, handicraft. One of the interviewees stated that it was not desirable for all ecovillagers to be employed on site as it will cut off a lot of connections with the wider community (Jeff, personal interview). The next section elaborates on sustainable land-use planning and management.

5.3. Sustainable Land-use Planning and Management

> The objective is to provide for the land requirements of human settlement development through environmentally sound physical planning and land use so as to ensure access to land to all households and, where appropriate, the encouragement of communally and collectively owned and managed land. (United Nations, 1992, chapter 7, paragraph 7.28)

This criterion of Agenda 21 stresses the importance of sustainable land planning and management as an underlying principle of SD. First, the document accentuates the careful analysis of the land in order to define the correct use of the territory. When O.U.R. Ecovillage obtained ownership of the land, the first year no construction activity occurred on the land. That year was spent on detailed observation and planning of the site (O.U.R. Ecovillage, 2012). The executive director of the ecovillage explains what the main objective was during that period:

> The whole focus of being within that year was that we would track all the information on this land […] Sit and listen and be really with the land, like: what is happening in four seasons over here? What is already growing on the land? What is happening with prevailing winds? Where is the solar aspect in four different seasons of the year? […] And all that mapping information laid out based maps and put overlays and overlays onto that. It was a really rich and deep year. (Site tour)

During the land surveying topography, ecological and biological aspects of the site were considered. Numerous workshops were organized to include professionals expertise in the areas of planning, permaculture design, agrology, education, regulatory processes and health (O.U.R. Ecovillage, 2012). The result of the workshops and meetings organised by the community was the formation of an exclusive RRCD zoning that allows multiple activities on the site. The

planning process executed in O.U.R. Ecovillage shows a holistic approach the ecovillagers had to land-use management since the first year on the land.

The next action plan item on sustainable land use identified in Agenda 21 emphasises that all countries should proceed with reforming current land-use practices into a more comprehensive model. This more advanced model should foster different activities, such as agriculture, business activities, transportation and ecological conservation among others, which are necessary for the development and maintenance of a human settlement (United Nations, 1992). This same principle was strongly advocated by the residents of O.U.R. Ecovillage when they applied to convert the site from Rural A2 Zone, which permits only one or two family dwellings, home business and agricultural activities on site (Agriculture Land Commission, n.d.), into a RRCD zone. The RRCD zoning allows diverse activities on the plot. The land parcel of 25 acres is divided into four sectors: education and infrastructure, agricultural, residential and conservation.

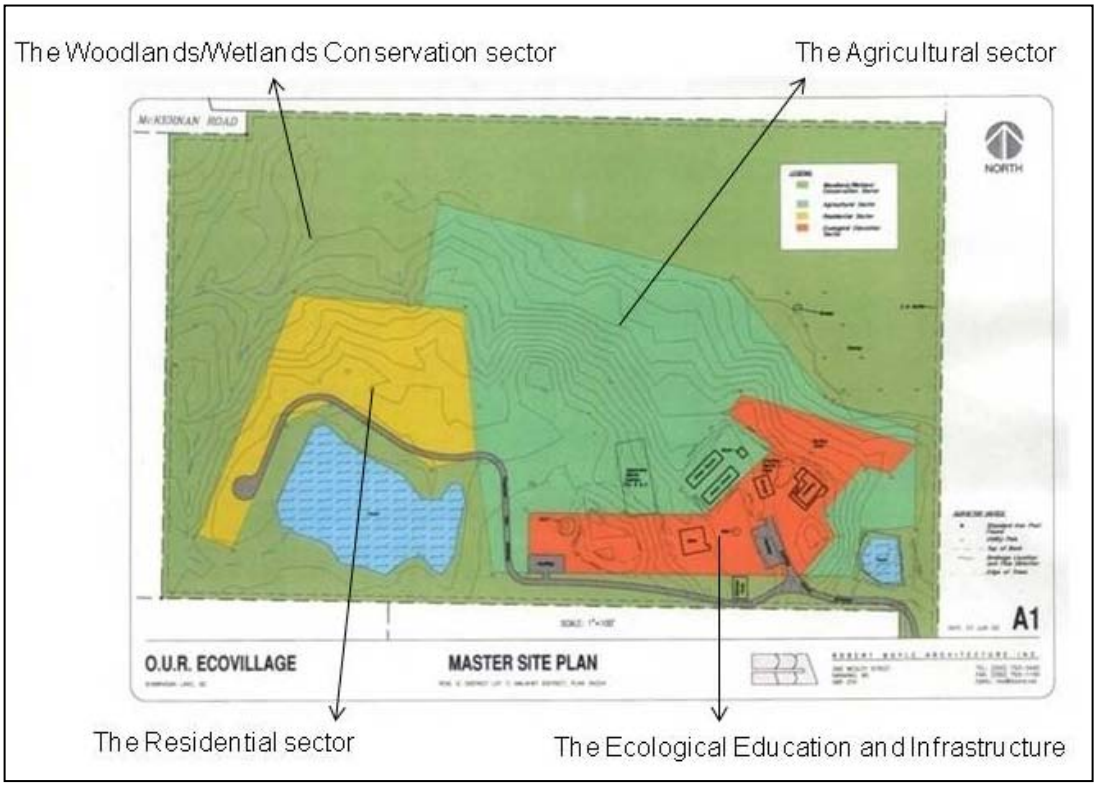


Figure 3 Rural Residential Comprehensive Development zoning plan of O.U.R. Ecovillage.
Source: Adapted from O.U.R. Ecovillage documents

The agriculture sector is a nine-acre plot of land that combines animal husbandry and organic farming. The ecovillagers' vision regarding this space is to "preserve and develop the agriculture potential of the land using sustainable, traditional, and organic practices" (O.U.R. Ecovillage official website, n.d.-e). Photo 4 demonstrates the organic garden, berry patch, and a greenhouse, which are a part of the agricultural sector of the land. Plants are planted in groups to benefit each other's pollination and growth as well as to minimise pests and diseases.

Photo 4 The Organic Garden and a Green House

The residential zone is allocated for nine ecological buildings for the ownership and rent (Site tour). In order to minimize the damage to ecologically sensitive and agricultural areas, the density averaging method was used, that equally divides around 10,000 sq. ft. of residential housing space among future house owners. The ecological education and infrastructure sector provides space for educational activities, work and accommodation for visitors. The conservation zone includes the site's most sensitive ecological areas (O.U.R. Ecovillage official website, n.d.-e):

> So put all of those elements together and back them up with zoning that includes food services, accommodation services, we legally have tenting, dorm space, and the B&B on site - so accessibility for all kinds and needs of different people. We

> also have unlimited businesses related to agriculture allowed, so little enterprises, people, can have their own little 'gig', can live on site, don't have to drive to Victoria. They can live in the yellow area, walk to the green or the red area. […] The light green part in the center is about nine acres of food production and we'll go there and look at how there is kind of interdependency of live stock and poultry and ground crops and green houses. The orange part is actually our indoor class room space and that means that entire 24 acres is the class room. If you are in restoration undergrad program in UVic[16] you wanna be on park space and the beautiful wetlands and the previous Gerry oak system on the south face, or the riparian area of the lake or the pond. But if you are in a building school or an architecture school you might want to be more into the yellow area, which is a actually a cluster of nine homes (Site tour).

The new zoning allows the ecovillage to exist and be maximum self reliant. The comprehensive planning also enables the community to operate in a sustainable community development mode. This approach to land management aligns with the Agenda 21 suggestion to develop a comprehensive planning model that combines competitive land-use practices.

Agenda 21 brings to attention the importance of environmentally sound land use planning, where ecologically sensitive areas must be strongly protected (United Nations, 1992). As was mentioned RRCD zoning of O.U.R. Ecovillage allocated around one third of the property to the woodlands and wetlands conservation. This area was mapped with Cowichan Community Land Trust and secured by the conservation covenant (O.U.R. Ecovillage official website, n.d.-e). The heavy protection of that area guarantees that the rest of the land cannot be used for development:

> So this outside green area is about third of the property, we've actually given away to be a park. So you can see my bias coming through in the team that just give away land and in that way you can protect it. But in this case rather than just giving away land, because sometimes we notice that doesn't protect the land. In organisations out there that suppose to be protecting land have challenges or governments change their mandate, their way of protecting the land changes, so what we may actually use regulatory process as not the barrier of protecting land? […] We actually drag the park space along the boundary line here… If you think of an opportunity to create a whole perimeter into a park space that is protected with very heavy protection covenant by-laws, then you actually can land lock the rest of the property. I mean possibly you could have just kept it as break all around the perimeter, and you can actually make it so that you'll never pave the 60 ft wide road, and bringing all the infrastructure you might want to create this into a

[16] UVic is a short name for the University of Victoria located in the Saanich district on Vancouver island, British Columbia, Canada

> commercial opportunity, which is probably what will be the driver to change the land, once we are gone the next generation will say: “Well that was really good, now we need to make some money, so we'll change this into something else”. That will never be able to happen, we are quite clear that it will take as much or more legal and political work to undo what has been done here. (Site tour)

The ecovillagers understand the intricate connection of the elements on the land, therefore, the sensitive ecological areas were protected not only to conserve the biodiversity of those regions but also to ensure the overall health of the site: “Preserve the natural qualities of the land by protecting and regenerating woodlands and wetlands” (O.U.R. Ecovillage official website, n.d.-e). Constraints were also placed on the number of programs and visitors allowed on site in order to preserve the ecological, agricultural and rural qualities of the area.

Another aspect of sustainable land use planning, according to Agenda 21, is collective ownership and management of the land and protection of land resources (United Nations, 1992). The ecovillage is currently in the process of transitioning to a multiple stakeholder ownership model that will enable collective governance and management of the site. The land will belong to the O.U.R. Ecovillage Co-operative that is represented by the board of directors and follows the Canadian Co-operatives Association's guidelines: “open, voluntary membership; transparent administration; democratic participation – one member, one vote; ethically based practices (in livelihood and lifestyle)” (O.U.R. Ecovillage, 2012, p. 11).

Agenda 21 encourages a collaborative approach to land management that includes ‘public, private and community sectors’ (United Nations, 1992, chapter 7, paragraph 7.30). In the process of developing the RRCD zoning the ecovillage closely cooperated with regulatory authorities such as Ministry of Agriculture, Cowichan Valley Regional District, Ministry of Highways, Ministry of Health, Cowichan Community Land Trust and Land Conservancy of British Columbia (O.U.R. Ecovillage, 2012). Furthermore, besides working with the regulatory bodies the ecovillage considered equally important to listen to the voices of the wider community. As a result, numerous workshops were organised to bring together hundreds of people with various backgrounds to brainstorm, envision, and contribute to the design of the ecovillage:

> And if you've ever done any community development work, imagine inviting everyone who wants to participate and having hundreds and hundreds and hundreds of people show up for designing vignettes. And at first I was like: “It is never gonna end”, because more and more people wanted to get involved and had something to

> say. And you know they would phone and say: “I am professor so and so from such and such, and then from science perspective you really need to include this. And you need to bring me on the board", and we were like: “Ok, jump in”. But all that visioning work eventually turned into a sustainable land management design, which created quite a famous rezoning that most people know O.U.R. Ecovillage for (Site tour).

The community’s official website highlights that the ecovillage is more than a place that consists of physical infrastructure, but it is a space created by thousands of people who either intentionally or not shaped the development of the ecovillage (O.U.R. Ecovillage official website, n.d.-e). The ecovillage intended to engage a wider community in the process of the settlement development, therefore following its logo ‘by the community, through the community and for the community’. This example also shows that the integrative collaborative decision-making discussed in chapter 4 was and continues to be implemented not only on the level of inner governance but also on the larger scale when applied to the overall development of the ecovillage.

Finally, Agenda 21 suggests sharing expertise and experience about sustainable land-use management techniques on interregional and international levels through seminars and workshops. As was mentioned earlier, the ecovillage offers numerous courses and workshops that engage people in learning about sustainable design of the site. The new zoning made O.U.R. Ecovillage known as a sustainable demonstration site not only in Canada but also on the international arena. The innovative practices implemented in the ecovillage keep attracting professionals, educators and researchers. One of the examples described during the site tour proves the latter:

> We had a whole group of farmers come from Spain to a conference in Victoria specifically so they [could] come on a field trip here. And they created an extra day after the conference to work on legal reform that they were trying to focus on how to save their farms by using zoning mechanisms. And at that time in Spain they were losing like 300 farms a month and it was this huge sweeps happening of land reform but for sustainable development, definitely not for sustainable food production (Site tour).

This quote shows that ecovillagers are open to sharing their successful practices in the area of land-use planning and eagerly exchange knowledge with everyone interested in changing the current state of land-use management in Canada and abroad. The knowledge obtained through

the community's research and experiments becomes public domain (Peak Moment, 2011). According to one of the ecovillage residents, unsustainable land-use management is one of the biggest obstacles for communities to transition towards sustainable lifestyle (Site tour).

One of the main challenges faced by the ecovillagers in the process of developing a sustainable land use plan was the regulatory restrictions around zoning (Victor, personal interview). After the refusal of the local authorities to approve the community's plan, the ecovillagers did not give up and offered to volunteer for the local government to develop new laws that will allow a more sustainable and comprehensive land management. This was not a common practice for the governmental officials: "And you know you don't usually waltz in to your local government and get to volunteer. But somehow much to their credibility, I think, now people did engage" (Site tour). However, in the process of working with the government, O.U.R. residents faced another problem – lack of cooperation between governmental departments; whereas the close collaboration between municipal offices was essential to create a comprehensive zoning:

> A lot of these people had never even all sat in the same office at the same time before. Some people never actually face to face met, which was astonishing to us. Like how could you pull off all community approval process and you even don't know who each other is and all you do is talk on the phone? So we did all our best work to get them together for tea and to talk. And two and a half years of legal and political process later, those four program partners […] who are sort of the highest authorities in land use and housing in Canada, not only did they step up to facilitate the regulatory process with us; they ended up back funding it. And actually putting out the money for $130 000 worth of legal and regulatory fees.That was hugely significant in those days (Site tour).

So at the end O.U.R. Ecovillage not only got approval for the RRCD zoning but it actually created bridges inside the governmental institutions and with the public. These new relationships can significantly ease the procedure for similar inquiries. The two and a half years' process done by the ecovillage is a legacy proving that cooperation with a local government can produce quality changes on a community and regional levels. The next section describes the environmental infrastructure implemented in O.U.R. Ecovillage.

5.4. Integrated Provision of Environmental Infrastructure

> All countries should assess the environmental suitability of infrastructure in human settlements, develop national goals for sustainable management of waste, and implement environmentally sound technology to ensure that the environment, human health and quality of life are protected. (United Nations, 1992, chapter 7, paragraph 7.39.)

This section of Agenda 21 focuses on the importance of environmental infrastructure, particularly water, sanitation, drainage and solid-waste management, for sustainable community development. Residents of O.U.R. Ecovillage also consider environmental infrastructure an essential part of healthy human settlement habitat. Water in the ecovillage is supplied by the local well. Some residents raise the concern that the amount of water provided by the aquifer is not defined; however, ecovillagers never experienced the shortage (Mandy, personal interview). A large portion of the water used for the garden is harvested during the rainy season. An existent rainwater collection system gathers water from the large classroom's roof and stores it in the cisterns until the dry season. Similar rainwater catchment systems are planned for every building that will be constructed on site (Anna, personal interview). Natural and man-made ponds on site are also used as water-storing compounds.

As was mentioned in the previous chapter, the area where O.U.R. Ecovillage is located has a long dry summer period. That is why ecovillagers use multiple methods of water saving, catchment, and treatment in situ. Grey water used in the community is purified and returned back to the system without leaving the property:

> We have quite bit of grey water stuff going on over here, several different systems. There is one coming from the current kitchen that is going on the hill side that sort of distribution branch, one coming from the main house at this point, it's also watering this garden on this hill side and another one coming from the kitchen in Taj II that is going into the orchard area. So there is three different systems at this point in place. (Anna, personal interview)

Grey water systems on site use natural purification techniques such as mulch basins, swales, warm bins, and plant filtration. Recycled water is used for watering trees and berry bushes. Solely biodegradable products are used on site that allows water to be cleaned naturally, reused and returned back to the system. Photo 5 shows the panel with instructions installed above the solar shower explaining the water recycling system on site.

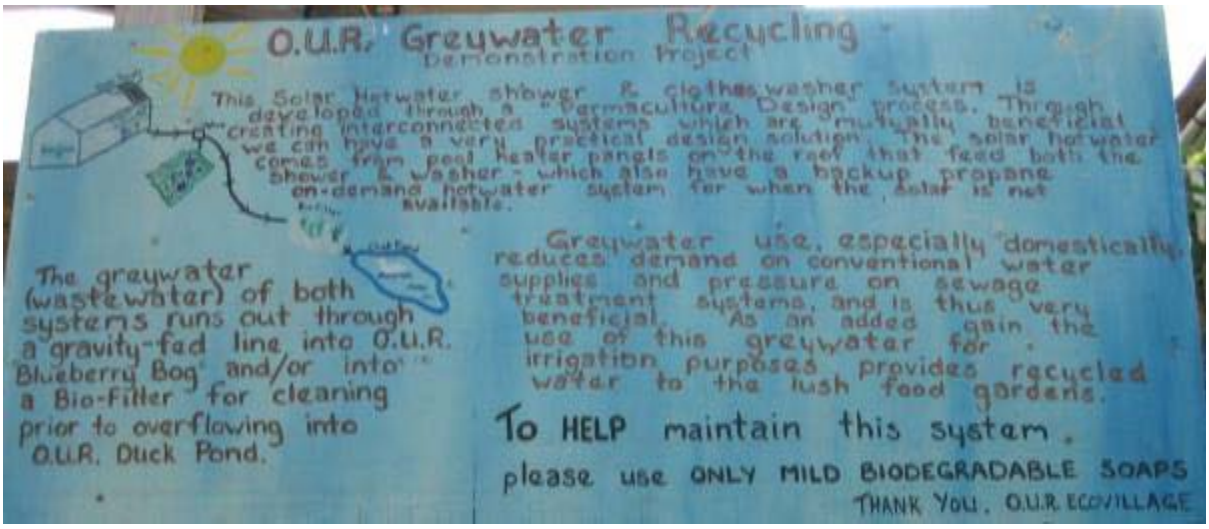


Photo 5 The Water Recycling System on Site

The ecovillage is not connected to the municipal sanitation system; thus, black water and waste are treated in situ. Sustainable sanitation on site includes composting toilets and septic tanks. Recycled materials are returned back to the land for enhancing the productivity of the soil. Most ecovillagers believe that it is important to have a complete cycle where the land receives back at least the same amount of nutrients as was extracted: "There are a lot of compost toilets on site, which is excellent. Think of how much water we are saving and nutrients being recycled" (Linda, personal interview). Additionally composting toilets do not require water that results in saving a large amount of clean water by the community.

Solid waste is also maximally recycled in situ. The majority of biological waste is either recycled through a three-bin composting system or by pigs and chickens. Waste that cannot be composted is recycled and the remaining goes to the landfill. However, in spite the large number of people visiting the site there is very little non reused or recycled waste being produced: "We have a blue bin, the smallest blue bin that we do and we probably fill it every six weeks" (Site tour). As mentioned by one of the interviewees, there is no intention for the

Photo 6 The Note On Trash Bins

ecovillage to become zero waste; however, reducing waste stream seems such an obvious element of a sustainable community that ecovillagers try their best to minimise the amount of waste produced on site (Mandy, personal interview). Most of the trash bins on site (as shown on photo 6) have a note on them stating 'Trash: Goes to landfill 570 km away in Washington, USA.', to raise awareness about where the 'thrown away' waste ends up. Furthermore, the residents reuse a lot of off-site materials that would otherwise be thrown in the landfill:

> On a practical level, the whole conversation about waste… Where the tires go when we throw them away? They don't! Where is 'away'? Do we really flush stuff away? Do we throw it away? This is really cool: the waste stream, the garbage waste stream from the Cowichan actually gets shipped to Seattle or down to the Washington state. How is that for 'away'? "Not my back yard, we'll send them to those guys!" (Site tour)

Many ecovillagers believe that the infrastructure is truly sustainable when the elements work together in a closed cycle to maximize the yield and minimize the waste. Such holistic design is maximum self-sufficient and most environmental. Brandy describes the examples of an integrated ecological infrastructure implemented on site:

> In permaculture design if you think everything fits together you start to notice things: like there is some solar hot water panels up the hill. They are gravity fed down to here and it goes to solar showers and hand wash here. The grey water from it floods out into this area where you can see we just planted blueberries. In permaculture people try and get as lazy as possible. Lazy farmers don't water their food production, way too high intensive. Think smarter not harder; work smarter not harder. The same thing happens here from our outdoor kitchen. The grey water floods down [through] a branch of an irrigation system and it falls into swales, mulch swales and mulch basins. And that is also watering blueberries, pear tree and saskatoons. So this whole hill side will turn into food and nobody waters it. In order to try this, the grey water actually gets filtered through wood chips and the way it falls. Off the side of the B&B all the grey water is rerouted; it goes through a worm bin […] All the worms eat all the little kitchen scraps. They let the rest of the water through. It waters all the far hillside of hackle berries and elder berries and it turns into a wild berry hill side - lazy person watering. (Site tour)

Figure 4 graphically demonstrates how the system described in the quote above looks like. So the ecovillagers not only install environmental infrastructure, but they also worked on developing the system that benefits the land by returning water and nutrients back into the environment.

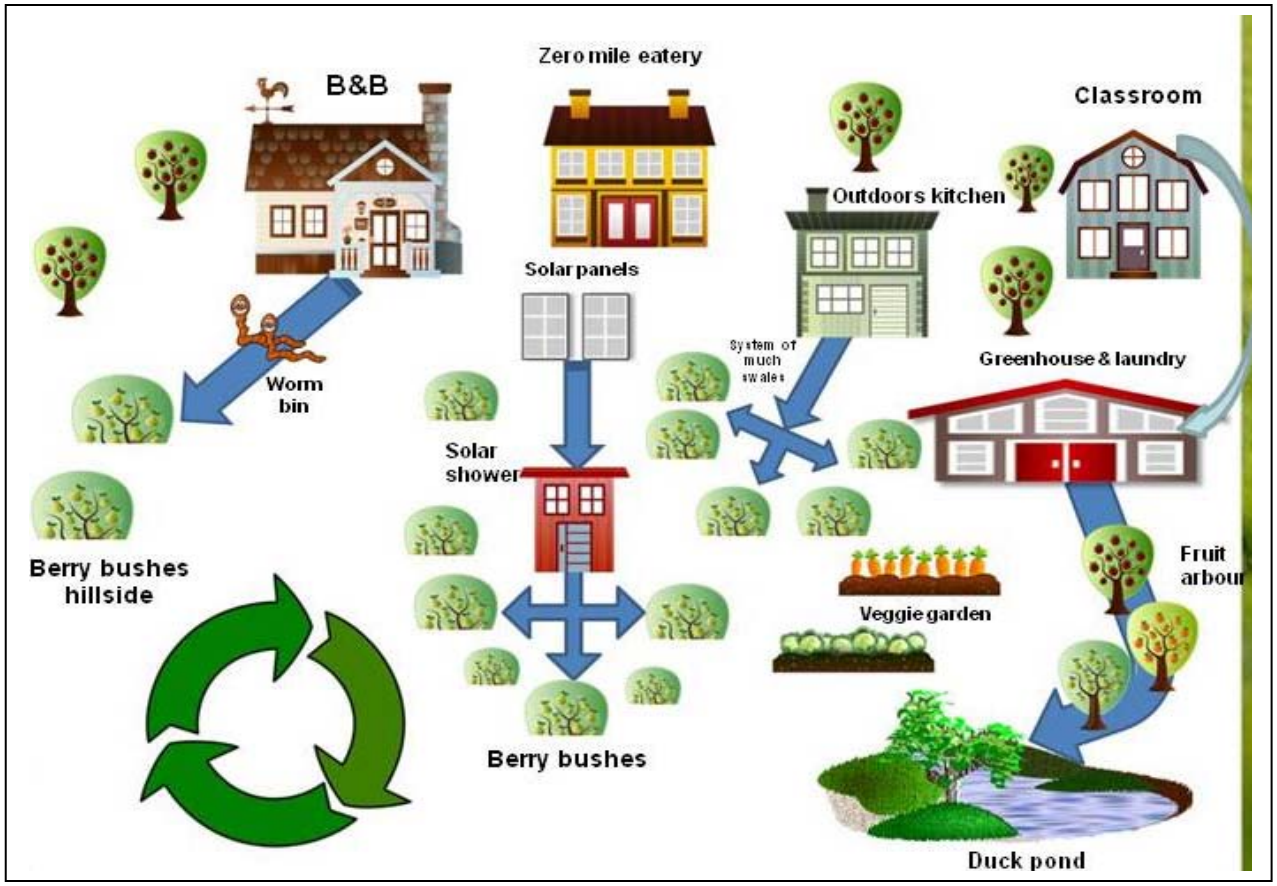


Figure 4 An Integrated Environmental Infrastructure Model. A Water Purification System on Site.

Residents of O.U.R. faced some challenges in installing and managing the environmental infrastructure on site. First, some of the current systems need improvements and changes, as many of them used experimental design and were installed by amateurs (PDC site tour). Another restraint is financial capital. Currently the ecovillage is in the active infrastructure development stage and resources are scarce (Victor, personal interview). One of the interns expressed his opinion about the needed improvements of the infrastructure:

> At least to have things that would work reliably, but we have none of them to budget, sometimes it is kind of challenging. I think they do pretty well here as far as sanitization and the water, the basic infrastructure considering the resources that they have. You know, it is challenging; It is hard to do that stuff when you don't have a lot of money. (Kyle, personal interview)

The next section will elaborate the sustainable energy and transport systems in O.U.R. Ecovillage.

5.5. Sustainable Energy and Transport Systems

> The objectives are to extend the provision of more energy-efficient technology and alternative/renewable energy for human settlement and to reduce negative impacts of energy production and use on human health and on the environment. (United Nations, 1992, chapter 7, paragraph 7.49.)

This section of Agenda 21 refers to household sector as a significant energy consumer. Non-efficient technologies and lack of governmental support of alternative energy sources contribute to the increasing consumption of energy and as a result to greater pollution. Therefore, Agenda 21 calls for more effective planning and management of energy use as well as education and support of public regarding alternative energy sources (United Nations, 1992). Currently, the majority of energy in O.U.R. Ecovillage is supplied by BC Hydro, Canadian hydroelectric utility located in British Columbia. Because hydro electricity is extracted from the renewable resource, ecovillagers consider it to be relatively 'clean'; besides it is an inexpensive source of energy.

Complete energy self-sufficiency is not a primary goal for the community. However, the community plans to integrate as many alternative energy sources as possible:

> Given where we are and the resources available, the type of sunlight we have, we have to create an integrated alternative energy structure, which will likely draw elements of solar power, elements of wind, possible some geothermal and possibly some commercial electricity as well. (Victor, personal interview)

Photo 7 The Solar-Panel System On Site

There are already a couple of solar panels installed on site that heat the solar shower during the summer as well as provide electricity for one residential unit (photo 7). Photovoltaic system is also used for hydronic radiant floor heating in a few buildings (Neil, personal interview). Houses on site are also constructed considering that in future they will be connected to the alternative sources of energy; however, there is no funding for it at the moment (Anna, personal interview). Construction practices on site, discussed in more detail in section 5.8., include energy-saving techniques such as materials with high insulation index and a passive

solar design, which significantly reduce the energy-use (Site tour).

According to Agenda 21, transportation is considered to be another substantial energy use system that is accountable for more than half of the world's petroleum consumption. The transportation system's efficiency can be improved through alternative transportation systems as well as appropriate community and transport planning (United Nations, 1992). O.U.R. Ecovillage is located in a rural area with a poor public transit system that does not allow its residents to significantly reduce the number of cars on site. However, ecovillagers own much fewer cars than a standard Canadian household as most of the residents are employed on site: "Pretty low carbon footprint, not too bad. It is hard to be late for work around here" (Site tour). Besides, there is a lot of car-pooling and car-sharing activities in the community, and many people use bicycles. During weekly community meetings, residents announce their traveling plans that allow others to join or borrow cars:

> People are trying to be quite aware around who needs to go where and if there is somebody either can give somebody a lift or bring materials back when they are going somewhere. Anyways, they've been a little conscious that way. (Anna, personal interview)

At the moment ecovillagers are in the process of establishing car-share co-operative that will significantly reduce the number of cars on site (Jeff, personal interview). There are already two donated cars in the community, one of which is running on vegetable oil (Victor, personal interview).

The residents of O.U.R. Ecovillage are aware that there is a lot of work that is needed to be done in the areas of energy and transportation systems. However, due to the financial restrains and active developmental stage of the settlement, ecovillagers do not currently prioritise these areas. Nonetheless, the building and infrastructure on site is constructed with the plan that in the future the settlement will be maximum self-sufficient in electricity and minimum dependent on the use of fossil fuels for transportation (Victor, personal interview). The next section explores human settlement planning and management techniques of the disaster-prone areas in O.U.R. Ecovillage.

5.6. Human Settlement Planning and Management in Disaster-Prone Areas

> The objective is to enable all countries, in particular those that are disaster-prone, to mitigate the negative impact of natural and man-made disasters on human settlements, national economies and the environment. (United Nations, 1992, chapter 7, paragraph 7.58.)

Developing a strategy that would help individuals, communities, and cities to deal with devastating consequences of natural and man-made disasters is an essential aspect of a settlement planning and management. Agenda 21 emphasises that it is important to maximally prepare for the disaster mitigation in order to minimize the negative impact on people's livelihood, environment, and economy. The action plan advised by the agenda consists of three stages: promotion of a culture of safety, developing pre-disaster planning, and insuring post-disaster reconstruction (United Nations, 1992).

According to the document, promotion of a culture of safety entails detailed study of the disaster-prone areas and an effect of possible disasters on human settlements. It is also necessary to raise the public's awareness about the disaster mitigation techniques and practices. Vancouver Island is located in the Cascadia subduction zone, a highly seismic region (Natural Resources Canada), that defines O.U.R. Ecovillage as a disaster-prone area. O.U.R. Ecovillage placed a visitor's guide on its official website, which contains an emergency map and action plan in case of fire, earthquake, and medical emergency. The ecovillage has its own internal signal language where three horn blasts signify an emergency situation -- everyone on site is expected to gather in the parking lot. During the PDC course students and residents were asked to create a detailed disaster-response plan. As a result of that exercise, some ecovillagers realised that they did not have a proper long-term plan in case of an emergency:

> Don't think we really have a disaster response plan; we have like master stations but not for long plans. And I think since we recently just did that exercise I think people were thinking maybe we need one a little bit more. (Mandy, personal interview)

Disaster awareness is only the first step in preparing a settlement for an emergency situation. It is as important to have pre-disaster and post-disaster plans that people can act upon in case of a crisis.

Development of a pre-disaster plan, according to Agenda 21, entails integration of disaster-resistant techniques and practices in a settlement planning. Particular importance is placed on disaster-resistant construction practices, water supply, and sewage systems (United Nations, 1992). Being aware that the ecovillage is located in the highly seismic zone, building practices in the community are engineered accordingly. Construction earthquake-resistant techniques such as diagonal basing, curvilinear, and load bearing walls are used (Neil, personal interview). Photo 8 shows the Healing Sanctuary, a building built from cob and straw bales. These techniques create thick load bearing walls and curvilinear construction.

Photo 8 An Example of the Load Bearing and Curvilinear Wall

Additionally, most of the buildings on site have a clay plaster that makes them fire resistant. The ecovillage extracts water from the on-site well that ensures clean and long-lasting water supply. Considering the fact that in case of emergency electricity sources can be limited the ecovillagers bought separate batteries. As was mentioned earlier, the sewage system on site is also independent and can hardly be affected by a disaster as it does not depend on electricity or water supply. The ecovillage is also surrounded by woodland and has a large supply of salvaged and donated timber, and almost every living space in the ecovillage is equipped with the fireplace or a wood-burning stove (photo 9). Therefore, the community can ensure wood heating for a long time, which is a crucial element in a cold climate. A large food supply is another

reason that some residents feel much safer in the ecovillage in case of an emergency. First, a lot of fruits and vegetables are grown on site almost year round. Second, the community is completely self-sufficient in meat and dairy. There is also a large storage of canned and dried produce.

> If there is an earthquake or something this is possibly the safest place to be. You've got some food, hopefully a consistent water supply from the well. You are not dependent on the water infrastructure. Like those are two things that are problematic in a disaster usually: water and food… and temperature and what not. So here chances are you will be ok until some sort of help will arrive. Like we've got a lot of food in jars and depot. (Kyle, personal interview)

In spite of the precautionary principles implemented in the planning of the community, O.U.R. Ecovillage does not have a post-disaster reconstruction plan. However, even Agenda 21 does not elaborate in detail on this aspect of an emergency mitigation. The document mainly emphasises the importance of international cooperation, where the development of local adaptation plans is just mentioned as a subsection. And whereas the first is primarily a responsibility of the national government, the latter can be addressed by the community itself. The next section of this chapter introduces sustainable construction practices applied in the ecovillage.

Photo 9 The Cob Wood-Burning Stove

5.7. Sustainable Construction Industry Activities

> The objectives are, first, to adopt policies and technologies and to exchange information on them in order to enable the construction sector meet human settlement development goals, while avoiding harmful side-effects on human health and on the biosphere, and, second to enhance the employment-generation capacity of the construction sector. Governments should work in close collaboration with the

> private sector in achieving these objectives. (United Nations, 1992, chapter 7, paragraph 7.64.)

Sustainable construction practices are an intrinsic aspect of the sustainable human settlement development and particularly of the adequate shelter provision, discussed in the first section of this chapter. Agenda 21 provides a few guidelines that are advised to be applied by all countries in order to ensure sustainability of construction practices. First, the document stresses the use of natural, local, and recycled materials (United Nations, 1992). O.U.R. Ecovillage is a demonstration and educational site for natural building; therefore, it incorporates various innovative and traditional sustainable construction practices. Most of the buildings on site are constructed with one or a combination of the following materials: natural, local, recycled, reused, locally processed. Natural materials include straw, stone, clay, wool, soil, sand, fallen/salvaged wood.

The most popular building technique used for the construction of buildings on the site is cob. Cob is a mixture of clay, sand, straw, and water. It is resistant to fire and seismic activities, safe in production and utilization, and can be easily made without machinery and professional skills. Moreover, if materials are extracted locally, cob is extremely low-carbon and low-impact construction method (Smith, 2006). Other techniques used in the ecovillage include: straw-bale[17], chip-and-slip[18], rammed earth[19], sheep's wool insulation, light clay[20], salvaged timber frame, board and batten[21], earthen bag foundation[22], clay plaster[23], earthen floors[24], fermented

[17] A construction technique that usually uses wheat, rye or oat bales as an infill for walls or as an insulation. It is earthquake-resistant, carbon storing, recycled material with a high insulation index (Bainbridge, 1986).

[18] A building material composed of wood chips and clay. It is cheap, has a low carbon footprint, easy in production and installation. (Natural Builders Northeast, n.d.)

[19] Building technique used to construct walls out of gravel, clay and earth or sand. It is durable, fire-resistant, earthquake-resistant, insect and rodent proof, ecological, has high load baring capacity and insulation index (Clifton Schooley and Assosiates, n.d.)

[20] A building material made out of clay, straw and/or woodchips. It consists of easily accessible, cheap and ecological materials. (Chiras, 2000)

[21] A vertical wood siding.

[22] A foundation usually built out of polypropylene bags filled with rammed earth or gravel with or without small addition of cement. The construction can be strengthened with a barbed wire and/or wooden stakes (Smith, 2002).

[23] A mixture of earth, clay, sand, fiber, water and/or flour applied for interior and exterior of a building. It allows moisture regulation inside a building (Crews, 2002).

[24] Made out of compacted earth or clay, it is an inexpensive, easy to fix and breathable method (Steen & Steen, 2002).

plaster[25], dry stacked stone foundation[26], reciprocal roof[27], dipped bale[28], cross bracing[29], living roof[30], hydronic radiant floor heating[31]. The objective of the ecovillage is not only to use healthy and safe natural materials but also to consider where the materials came from and how they were harvested and processed.

> The entire structure has been created by either salvaged or natural materials. So it is kind of a big discussion about organics. We have the same conversation about local versus you know bamboo floor that comes from China and carbon foot print of that. So are we mostly after local or we are mostly after natural materials that are unprocessed like clay and sand and straw and wood? Obviously there are things like plumbing and electrical that we can't salvage. It is not within the building code. Generally everything in here is either, by order, local, salvaged, natural, and/or somehow donated or recycled into the process. So almost all of the building except for the wiring and the plumbing […] all came through all those kind of 'waste streams'. (Site tour)

Therefore, the ecovillage stresses the importance of understanding the difference between natural and sustainable materials. Whereas the former refers to the content of a material, the latter takes into consideration extraction, processing, and transportation methods. Photo 10 demonstrates the construction of the Community Commons that will be used as eatery and office space. The first floor is built using light clay method; the walls of the second floor will be filled completely with straw bales; the timber frame is made from salvaged wood. Straw bales, clay, sand, and wood were extracted locally and, therefore, have a much lower ecological footprint compared to imported natural materials.

---

[25] Clay plaster with an addition of fermented organic matter. Bonding produced by fermentation strengthens the plaster as it dries up.

[26] Foundation made out of stones with or without small additions of cement or mortar (Smith, 2002).

[27] Self-supporting beam structure (Popovic Larsen, 2008).

[28] A method of straw-bale construction, where bales are dipped in a clay slip before being staked. The thin coat of clay slip strengthens the wall and makes it easy to work with bales (Magwood, 2009).

29 Building technique that strengthens a construction, used in both traditional and conventional buildings as a seismic-resistant method.

30 A roof covered with vegetation, which insures climatic stabilization of a building (Kennedy, 2002).

31 A system of under or infloor tubes filled with hot water.

The second objective mentioned in Agenda 21 on sustainable construction activities is the use of energy-efficient design (United Nations, 1992). Besides increasing energy-efficiency O.U.R. Ecovillage uses various construction techniques and designs for decreasing the construction cost, carbon foot print and environmental damage. First, most of the buildings include a combination of construction techniques and materials in order to adapt the building to the local environment and microclimates (Site tour). For example, south facing walls of the building are constructed out of cob that collects and stores the heat, whereas northern walls are made out of straw bales that have very high insulation index. Passive solar building design is another technique used in the ecovillage. This method considers positioning of the building regarding the sun trajectory throughout the year[32]. Solar passive design is directed towards naturally warming a house in winter by storing solar energy and cooling it during summer by minimizing heat absorption (Bingham & Pfeffer, 2007; Marinelli & Bierman-Lytle, 1995). Third, design technique is the focus atthe small-scale housing. As was already mentioned in the first section of this chapter, this method significantly increases the energy-efficiency of a building and decreases its ecological footprint (Bingham & Pfeffer, 2007). Another sustainable construction method is hydronic radiant floor heating[33]. This method uses a system of water tubes installed in or under the floor that evenly distributed and releases the heat, turning the floor surface into a radiator. Compared to conventional forced-air systems, hydronic radiant floor heating is considered to be more

Photo 10 The Construction of the Straw Bale Building

32 Passive solar design techniques include consideration of solar orientation, thermal mass storage inside a building, exterior shading, windbreaks and daylighting (Marinelli & Bierman-Lytle, 1995).

33 It was recorded that this technique was used by Romans to heat bathhouses (Canada Mortgage and Housing Corporation, n.d.-b)

energy-efficient, less space consuming, quieter, cleaner, and more compatible with other energy sources (Canada Mortgage and Housing Corporation, n.d.-b; Marinelli & Bierman-Lytle, 1995). One of the hearthkeepers gives a brief overview of the design techniques combination used for one of the natural buildings on site:

> The north side of the building on the perimeter walls here is bale infill R 40, R 50 insulation. There is no passive solar here - put your insulation on that north side. On the south any possibility of passive solar - earthen construction infill, a lot of people will use the term cob (clay and sand and straw). It is like monolithic adobe infill that is actually thermo mass, it is creating a passive solar gain. It is all part of the building biology again: put thermo mass into the floors, put hot water lines in here. It is 75% more efficient to heat the mass of the building than to heat the air. So the whole building becomes this interconnectivity breathing walls with the 'dew point' in the walls. Even the clay plaster in the exterior is actually able to take in and absorb the moisture from the room and then let it out. So clay plaster on the walls helps to regulate the humidity of the room - it is a living breathing system. (Site tour)

The use of low-tech design techniques allows ecovillagers to use manpower instead of machinery as well as creating a safe environment for people of various ages and abilities to join the construction process. Additionally, Agenda 21 considers low-tech or labor-intensive building techniques beneficial for the local economy as they require more people, which increase the employment of local population.

The third guideline addressed in Agenda 21 focuses on protection of eco-sensitive zones from development (United Nations, 1992). Harmonious integration of construction in the natural environment is one of the major objectives in the ecovillage (Site tour). As was mentioned earlier in this chapter, RRCD zoning ensures the conservation of eco-sensitive lands on site. As a result one third of the ecovillage's property is protected by the heavy covenant that does not allow any construction activities (O.U.R. Ecovillage, 2012).

The last direction given by Agenda 21 on sustainable construction activities emphasises research in this field, exchange and distribution of information (United Nations, 1992). Being a demonstration and educational site on natural building, O.U.R. Ecovillage is in a constant research process on sustainable construction practices. Photo 11 demonstrates a natural building that is monitored by the local authorities:

> So the building that you are sitting in is the first natural building in Canada to be monitored for 10 years by the regulatory authorities. And a lot of our friends and

> family were again like: “You, guys, are so crazy! You want to a pay monthly or yearly engineer study to evaluate building and monitor it and you will pay for all the documentation for 10 years?”. Again we had no idea what we were getting ourselves into but again we have said: “Yes, cause this is the right thing to do. And we really need to have a research repository so these things move forward." (Site tour)

Photo 11 The First Natural Building on Site
Photo courtesy: O.U.R. Ecovillage

Last year the ecovillage stepped up to another challenge. During my stay in the community, the natural building team, supported by numerous volunteers and educational programs, was half way through the construction of Community Commons. This building is a part of Living Building Challenge, an advanced certification program launched by the International Living Future Institute and supported by the Canada Green Building Council. The program focuses on a holistic sustainability assessment of buildings, infrastructure, neighbourhoods and landscapes according to the following seven criteria: site, water, energy, health, materials, equity and beauty (International Living Future Institute, n.d.). A member of the building crew describes some details of the project:

> It is not very different because we are doing natural building here. So a lot of those natural building skills set translate to the Living Building Challenge but what is different about this is everything is more highly researched in terms of where the raw materials come from and where manufactured products come from and that the products don't contain the red listed items in terms of amalgamate and all the other toxins that are red listed. But since earthern buildings a lot of them are built with either earthern materials and the reclaim materials have already ‘off gazed’, those

> are amalgamates. So there is not a lot of differences between the practices but this is completely documented every step of it, which is a difference, a big difference (Neil, personal interview).

O.U.R. Ecovillage is a pioneer in many areas of sustainable design regarding both visible and invisible infrastructures, and construction practices integrated in the community attracts many visitors and students on site. Besides being an example and a trailblazer in the area of natural buildings, the ecovillagers also 'talk the walk' by sharing their knowledge. Every year the ecovillage offers multiple courses on various aspects of sustainable construction. Varying from a couple of hours' workshops to a four months' internship, the community educates a wide range of people about sustainable building practices and sustainable living:

> Our school this year alone has interfaced… by the end of the year will be 10 000 people, last year was 8 000. So you can imagine how increamentaly the demand for information and support on things is. It's growing exponentially, it seems. (Site tour)

However, the ecovillagers' path of sustainable construction activities was not smooth. Traditional and alternative building techniques are not well supported by the regulatory authorities. The process of approval for some buildings in the ecovillage took a few years:

> Imagine walking into the regulatory authorities office and say: "We would like to build a building that has dirt [earthern] floors". And building inspectors were like: "I don't think so. You gonna have water [hydronic radiant floor heating] inside dirt floors? That doesn't combine well. I think it is a health and safety standard issue." […]
> The first house in that cluster is the pilot house for the nine home cluster. It took another very long period of years to actually get a development permit for that. And the whole thing again we come around regulatory processes especially to do with waste water. What we consider waste and what somebody else might consider waste is a very long conversation. (Site tour)

> After winning multiple awards for green building, ecological design, and innovation, we still find it almost over-the-top challenging at times to move through regulatory processes, and certainly mainstream financing, for these types of beautiful, healthy, and affordable housing projects. (Gallagher, 2012)

Besides external challenges the community is restricted by some internal difficulties. First, educational programs bring a lot of short-term volunteers on site that speed up the construction process; however, it also complicates the planning and leaves the site with only a few crew

members during the remaining time of the year. Second, making the design process of buildings a learning, participatory and innovative process is prone to more mistakes:

> I think some of the designs aren't very strong. But they are also learning pieces; it is an educational place and people have been learning themselves, so this is a 'learning'. By looking around I see and being involved in the building I see there are really strong lessons to be learned; for example, the sleeping dock in the studio is cob. In the winter it is like a refrigerator. And people don't really want to sleep in that space because cob holds that cold. So that wasn't thought out really well. Things like that, they are minor, they are just learning pieces that happen in any construction industry, specially with all this natural building. It is very creative and free form, so that's bound to happen. (Neil, personal interview)

The ecovillagers agree that some of the challenges and weaknesses are intrinsic due to the experimental nature of the community and most probably will continue in the future as the settlement keeps testing new alternative practices.

The next section discusses human resource development and capacity-building, the last criteria in Agenda 21 on sustainable human settlement development.

5.8. Human Resource Development and Capacity-Building for Human Settlement Development

> The objective is to improve human resource development and capacity-building in all countries by enhancing the personal and institutional capacity of all actors, particularly indigenous people and women, involved in human settlement development. (United Nations, 1992, chapter 7, paragraph 7.76.)

This section of Agenda 21 focuses on strengthening skills and competencies of communities' residents. First of all, the document emphasises the importance of training and information sharing between all participants involved in community development. O.U.R. Ecovillage is a small but complex and vibrant community that gives opportunity to obtain various skills on site. Due to the educational mission of the community, residents are constantly exposed to various educational programs and have a chance to communicate with leading professionals in the area of SD. Residents are regularly provided with free or reduced rate trainings on sustainable community development in the areas of natural building, permaculture,

organic gardening, conflict resolution, alternative governance, ecovillage development among others.

> We purposely host on site certain kinds of workshops […] And we want to have those programs because it is an important part of training for living in the intentional community or living more sustainably. So definitely doing what we can in that area. (Linda, personal interview)

The ecovillage also pays for the external courses taken by the ecovillagers if they are aligned with the needs of the community (Rachel, personal interview). Due to the diverse background of the ecovillagers, the community is self-sufficient in skills set in many critical areas of sustainable living (Neil, personal interview). Besides, many residents share the idea that just living in this type of community provides daily opportunity to learn. This principle is also encoded in the community rules as every resident has to volunteer ten hours per week; and thus, interact with more people and learn new skills. Living in a community also includes meal sharing, weekly council meetings, celebrations, hosting visitors, and other events that encourage people to discuss professional issues, share new ideas and expertise.

> As a learning community that is an ongoing process. One of the key elements of a sustainable lifestyle in this community is an openness to learning 'ongoingly' and teaching in a sense by 'sharing ourselves'. Others can learn simply by meeting deeply. There are different layers to that question. I think in terms of skills, people living in this community and connected with the community are continually in contact with all the courses and educational programs happening here, so whether it is a permaculture design or traditional African culture and music or or or. There are some very highly skilled teachers who come through here, leaders in North America in sustainable design or lifestyles or intentional community development. So there is a continual opportunity to learn just through sharing space with these people. (Victor, personal interview)

O.U.R. Ecovillage gives a chance to people without any prior training to learn and later apply obtained skills on site. Furthermore, it invests in its residents even if they do not plan to reside there permanently.

> Like the building team, this year, for example, [one of the Skill Builders] took it and then after that she was hired on. She has very little building experience, but she has been here and she showed that she can learn really well. And so they will take someone with not a lot of experience and teach them how to do the job here. I think that is pretty great. (Mandy, personal interview)

Most ecovillagers believe that the community should be a classroom and a workshop of sustainable lifestyle for current residents, growing generation and the wider community. This concept is strongly embedded in the activities, organization, and objectives of the ecovillage. It is important for a community's sustainability to be able to create a setting that enables all participants to develop diverse skills and contribute to the development of the community.

The second tool for the improvement of a community's human resource development and capacity building mentioned in Agenda 21 is a close cooperation between public, community and private sectors (United Nations, 1992). Multiple interviews, the community's documents as well as participant observation showed that many ecovillagers believe that for a community to be truly sustainable it should have four stakeholders represented: government, private sector, academia, and grassroots community.

> I think having partners is also a big statement about how this project all started and it used to be a commons. So if it is a commons project for all, then you really need a diversity of all to show up, not just a whole bunch of really amazing academic focus people, not just a whole bunch of businesses that want to pedal their green, you know, industry product, not just a bunch of government that's gonna prove and sign everything. Cause this is not really the truth about the story of who community is. We need all the grassroots people too, and we need all those guys sitting at the picnic tables eating together and having real relationships. […] If you can get those four stakeholders at the table I think that is much more sustainable community project, and it could be large or small […] but once we start working on that level then we really have something else going on. (Brandy, personal interview)

> It really is in hundreds of connections or relationships. […] So educational partners, funding partners, building partners, intentional community partners. And like partnership… like there is some kind of exchange or there is support coming in, then the whole co-op sector would be another area; whole range of very specific local partnerships with individuals and companies that have some interest in sustainability; people who or organizations that want to come and have events here. (Linda, personal interview)

The cooperation is important for creating an arena for knowledge and expertise sharing as well as for holistic community development. Emphasis on the co-creation is clear in the mission and the covenant of the community as well as in the voices of the ecovillagers:

> We have 11 different universities and colleges who partner with us, use the site to various degrees. We have multiple government regulatory partners in research for

> the building codes. […] We worked with a number of big corporations around the research that created the rezoning here. There is a lot. We are continually looking to partner. Recently with the bigger building development we've had sponsorship and significant donations. We partner extensively with government agencies in training programs over the last 10 years, I am not sure how many training programs have been run here, but they have allowed people to have had challenges being employed to being trained or have an opportunity to contribute here. (Victor, personal interview)

There are around 50 partners in different areas that help to develop the ecovillage 'by the community, for the community and through the community' (O.U.R. Ecovillage, 2012). The ecovillage actively engaged public, scientists and governmental officials since the earliest stages of development. And many projects described in the earlier sections of this chapter became reality only due to the new bridges built by the community.

In spite of the numerous learning opportunities and benefits of cooperative living, some people find this lifestyle challenging as life in the ecovillage implies additional obligations and restrictions. Every adult resident is obliged to contribute ten volunteering hours weekly for the community service (Anna, personal interview). It might not be possible for people who work off site or have large families to allocate this much time towards community development. As interviews and personal communication show, the large number of meetings required as a part of the governance process also can be quite stressful for some people who are willing to live in an intentional community. Many residents expressed their wish to have more free time to spend on private business, activities, and family. This type of cooperative lifestyle is a serious barrier for the ecovillage to obtain long-term residents. During the focus group session all participants agreed that many people who join the community come from the individualistic western culture and do not know how to live and work together (Focus group). As a result at this stage the ecovillage has very small core group that carries the whole load of the strategic aspect of a community development. Even though there are many temporary residents who help to sustain and develop the site, the ecovillage requires more committed residents.

Agenda 21 expresses too a quantitative approach towards human settlement development in general and capacity building in particular. Whereas training and a diverse skill set is important for a community's effectiveness, ecovillages emphasise a more profound approach to human resource development (Kasper, 2008). As was mentioned in the previous chapter, O.U.R.

Ecovillage places high importance on building deep connections inside the community to ensure trust, sense of belonging, and cooperation. These principles are crucial for the community's existence. They are based on community's values and fostered through daily practices such as common meals, shared chores and deep conversations.

A further discussion on this topic as well as a table summarizing mentioned results are presented in Chapter 6.

CHAPTER 6: DISCUSSION

6.0. Introduction

This chapter, first, provides discussion on the eight criteria mentioned in Agenda 21 Chapter 7 on Sustainable Human Habitat Development: adequate shelter; human settlement management; sustainable land-use planning and management; environmental infrastructure; sustainable energy and transport systems; human settlement planning and management in disaster-prone areas; sustainable construction industry activities; human resource development and capacity-building. Further, obtained results are discussed within the larger frame of SD, addressing the main pillars of the paradigm. Finally this chapter elaborates on internal and external challenges of the ecovillage.

6.1. Discussion of Key Findings Related to Agenda 21

The ecovillage is still in its early stage of development and does not claim to be a completely sustainable community but rather plays the role of an experiment testing ground for exploring various sustainable techniques and models. However, the case of O.U.R. Ecovillage provides a great opportunity to see one of the possible scenarios of a SD through bottom-up community-based initiatives. Therefore, this section discusses how principles stated in Agenda 21 can be implemented on a community level.

The first aspect of community development discussed in Agenda 21 is the provision of adequate shelter. The idea of adequate shelter proposed by the document has two main characteristics which is low financial cost and minimal environmental impact. O.U.R. Ecovillage integrates various techniques to address both of these aspects that are described in more detail in the sustainable construction practices section. One aspect of a shelter provision model demonstrated in O.U.R. Ecovillage that no monetary worth or an ecological index can be assigned to is the value of a house built by a community's hands and not a construction company. Kellner (2011) in her book *Housing Reclaimed: Sustainable Homes for Next to*

Nothing reminds that building one's own shelter by a family or with the help of a community was natural to humans throughout the history, but now for many it seems close to impossible. Beyond ensuring a mortgage-free future, the custom of building houses was building bonds: "The alchemy of building aims higher than just the individual natural house. It is about developing community, healthy social forms, a vibrant relationship between house and people, and closely-knit neighborhoods" (Jacobsen, 2002, p. 43). These bonds are created, first, between a building and people who constructed it, by designing, choosing materials and building it. Second, working together brings family members closer to each other, as building a house requires a high level of cooperation. And third, involvement of common efforts, numerous skills, and a large amount of support helps to build stronger relationships inside the community. Natural buildings constructed in the ecovillage are built by the whole community, and are planned to stand for hundreds of years, serve next 'seven generations' and eventually harmlessly return back to its environment. This reverent attitude to the process of construction and buildings themselves was strongly felt in O.U.R. Ecovillage and the following quote proves it:

> There is something about being able to say that when you are doing sustainable design you know what's gonna live on. Hundreds and hundreds and hundreds of people come here and volunteer every year, they put their hand to something. We all wanna know that a building that can last three to seven hundred years, like a building like this, is still gonna be here. (Site tour)

Building a house or helping to construct someone's home is also an effective technique to empower everyone especially deprived, socially marginalized or differently-abled individuals. Knowledge, experience and connections obtained during work-parties can be life-changing for many people. O.U.R. Ecovillage gives a much more profound meaning to the idea of shelter provision than expressed in Agenda 21. As in many other aspects of the ecovillage living, shelter provision is viewed as more than just constructing buildings, but rather as an expression of a family's or community's values (Zamchevska, 2012).

The second criterion mentioned in Agenda 21 is the improvement of human settlement management through the development of ecologically sound small-scale rural employment. The large achievement that was initiated by the community is the development of the innovative Rural Residential Comprehensive Development (RRCD) zoning that allows establishment of much bigger variety of business activities than standard agricultural zoning. And even though the

ecovillage is not economically self-sufficient, the community is working hard on creating enough paid jobs for all residents through educational programs, tourism, and private practices. The ecovillage operates a couple of businesses on site such as bed and breakfast, eatery and a school. The community also generates income from various cultural events and renting out the space on site. These income-generating activities can be considered ecological, small scale and rural based. However, the idea of local economy can be taken wider than just ecovillage itself. As was mentioned in the previous chapters ecovillagers, greatly support local producers by purchasing local food, materials, and services. Thus, by strengthening local economy, the ecovillage ensures strong relationships and a healthy financial environment that in return nourishes the internal economy of a community. This principle of the common good is rooted in the idea of an ecovillage lifestyle and spreads out into the wider community: “There is an understanding that my well-being is actually based in the well-being of the village. So via bringing the resource, I am bringing it for the village and from that I brobably will get fed” (Peak Moment, 2011).

The third criterion is sustainable land-use planning and management. Land use planning is considered to be critical for the development of a community (Kelly & Becker, 2000). Agenda 21 emphasises that sustainable land use can be achieved by proper planning and cooperative management. Results showed that residents of the ecovillage spend a lot of effort in designing the sustainable layout of the community through cooperation with specialists, a wider community, and the local government. The new RRCD zone enables communal land management, access of all households to the common land, conservation of ecologically sensitive areas, and multiple economic activities on site. In spite of the obstacles, O.U.R. Ecovillage provided a real life example of what sustainable planning can look like in practice. This case proves that grass-roots initiatives can be a powerful tool for altering policies on a local level and beyond.

The fourth criterion, which is integrated provision of environmental infrastructure, in the frames of O.U.R. Ecovillage is expressed through various small and large interconnected systems. Recycling, composting, reusing, and repurposing of waste materials, use of biodegradable products, composting toilets, rain water collection, natural filtration, waste water capturing is not a full list of environmental infrastructure of water, sanitation, drainage and solid-waste management that is implemented on site. The most significant aspect is that the

ecovillagers work on creating a comprehensive model that integrates all the practices together, therefore minimising the waste and recycling the nutrients back into the system. Dawson (2006) noticed this characteristic in many other ecovillages and stated it to be “partly a function of intentional design, partly a function of scale” (p. 43). In many ecovillages and particularly in O.U.R., this intentional design is based on the permaculture principles discussed in chapter 4. Infrastructure system implemented on site is a good demonstration for some permaculture designing principles. For example, the principle ‘use renewable resource and services’ (Holmgren, 2002) can be seen being applied in the worm composting bins, where worms not only clean water but also enrich the soil with nutrients. Another principle ‘integrate rather than segregate’ (Holmgren, 2002) can be seen in the way water filtration system is used, where animals, plants, and micro-organisms each have its role in the process. These and other principles combined enable O.U.R. Ecovillage to implement infrastructure that does not require external facilities for the operation.

Sustainable energy and transport systems, the fifth criterion stated in Agenda 21, calls for alternative sources of energy and energy-efficient technologies. Most of the energy used in O.U.R. Ecovillage comes from the conventional sources. And even though every residential building on site is planned to be self-sufficient in energy, at the moment the community does not have enough resources to install needed equipment. A few ecovillagers stated that due to the distance to a large urban center, they need cars for transportation, but they plan to reduce the number of cars on site through a car-share co-op. From a more holistic perspective energy-efficiency is expressed not only through the use of alternative technologies, but also embedded in the lifestyle of a community. Most of the ecovillages use either ‘low-tech’ or ‘high-tech’ approach (Dawson, 2006). However, O.U.R. Ecovillage tries to combine the two by avoiding the use of some modern appliances and at the same time using alternative technologies for example solar panels. Both of these approaches are encoded in many activities on site that allows the community to decrease the use of energy. This principle can be drawn on the example of buildings constructed on site. A building uses energy during transportation of materials and construction stage, called embodied energy, and after to heat and light a building, called energy-in-use (Whitefield, 2005). The research conducted in the USA showed that the construction price of the energy-efficient house is approximately five percent higher than conventional one but the

amount of energy saved during the lifetime of a such building can result in $50,000 to $100,000 savings (Miller & Spoolman, 2008), which means that these buildings are much more economical. So the fact that many buildings on site are constructed using locally extracted or reused materials, human power, energy-efficient design, and alternative energy sources, means that O.U.R. Ecovillage saves a lot of embodied energy and energy-in-use at least in this area. Therefore, use of alternative energy sources or energy-efficient technologies does not determine a community's total energy efficiency as there are many low-tech energy saving techniques that can be included in the design.

Human settlement planning and management in disaster-prone areas is the next section discussed in Agenda 21. The document encourages governments on local and national levels to prepare pre- and post-disaster plans for communities in a high-risk environment. Friedmann (1990) states that the following four social mobilization principles should be presented in a reconstruction plan: i) citizens should be responsible for helping themselves; ii) a community should agree on the action plan; iii) participants should ensure a balance between private and group interests; iv) a community should strive for self-sufficiency. And even though O.U.R. Ecovillage does not have a ready post-disaster reconstruction plan, the intrinsic characteristics of an ecovillage, such as planning its own development, balancing individual/collective interests and aiming for self reliance, follow the mentioned principles. Regarding the pre-disaster planning, the community uses various earthquake resistant techniques in the construction of the buildings on site, as it is located in a seismic zone. The ecovillage has also a few advantages in case of a hazard such as an independent water source, food supply, sanitary waste treatment, and access to fire wood. Another important aspect that becomes critical in post-disaster mitigation is skills set. Residents of O.U.R. Ecovillage have knowledge and experience in building homes, growing and preserving food, raising animals, collaborating and resolving conflicts, among others. These skills are critical for survival of individuals and the rehabilitation of a community in post-disaster times. Ruhmi Mayur, a director of the International Institute for a Sustainable Future located in Bombay, asserts that ecovillages serve as important post-disaster reconstruction centers: "By integrating the human heart, the natural environment and ecological techniques for self-sufficiency, ecovillages not only remedy immediate practical problems, but harness people against disaster. That is why I coined the term 'Disaster Reconstruction Ecovillages', where

people can relocate in community, and meet all of their basic needs while preparing for the future.' (as cited in Svensson, 2002a, p. 155). Here Mayur raises another important point of a reconstruction plan – the importance of a community. This social aspect assists victims not only in helping each other during a disaster, through physical and moral support, but also in rehabilitating faster afterwards.

A section on sustainable industry activities clearly shows how O.U.R. Ecovillage integrates all three pillars of SD. First, natural building techniques combine environmental materials and construction methods that significantly decrease the negative impact on the environment. Second, easy to learn and save techniques allow people of all ages and abilities to participate in the process, thus, decreasing the intergenerational and intercultural gaps. Third, sustainable construction practices increase the demand for local materials and labor that strengthens the regional economy. But even more than that, the ecovillage is working on changing building codes in the area of sustainable construction. Housing codes is a serious barrier not only for O.U.R. Ecovillage, but also other sustainable communities (Ergas, 2010). Elizabeth (2002) suggests not even to mention word 'natural buildings' while communicating with building authorities as there is a lot of scepticism regarding this notion. And even though the number of studies proving the benefits of alternative construction practices grows, individuals and communities in many western countries who want to build out of natural materials have to go through a long tedious approval process and often face rejection from local authorities. O.U.R. Ecovillage shows an example of how cooperation between a community and local government can lead to new possibilities in the area of sustainable practices. Often these processes can take years and a lot of human and financial resources, but at the end once the path is made it can be used by others.

The last criterion discussed in Agenda 21 is human resource development and capacity-building for human settlement development. This section particularly emphasises the improvement of the capacity of people involved in the development of a community. A few ecovillagers in O.U.R. mentioned the transforming power that the community setting has on people. Constant learning is an intrinsic feature of the settlement. O.U.R. Ecovillage is a community that requires a lot of commitment as ecovillagers have to interact on multiple levels and acquire skills in various areas. As observed, many people who come for a day tour looked

overwhelmed with the amount of information presented. However, even residents who have lived on site for years confess that learning never stops. New knowledge might be acquired by communicating with one of the multiple visitors or by resolving another conflict in the community. Numerous workshops and trainings are just one aspect of education on site. Another important learning curve is to learn how to live cooperatively. This aspect turned to be the hardest for many people who tried to live in the community. Walker (2005), a co-founder and executive director of EcoVillage at Ihaca, describes the learning process in an ecovillage in this way:

> I sometimes say that we live in a cauldron of personal growth here. As we learn to relate thoughtfully with other 160 children and adults in our community, we inevitably discover clashes in values, lifestyles, personalities, and preferences. The key is not only to be open to others, but also to look closely at our own behavior. If something isn't working, it's important to question how we might be contributing to the problem and take responsibility for making creative changes. (Walker, 2005, p. 162)

Finding a balance between individual and collective needs is constant work. Life in the ecovillage shows that residents are in a sense shaping their own world and that requires wide knowledge and skills set as well as high level of collaboration and trust. And whereas the former can be obtained through workshops, the latter is being carefully built through deep relationships. Learning how to communicate and connect with each other is not an option in the frames of the cooperative ecovillage lifestyle. The survival of the community depends on how well its residents get along with each other. Lives of the ecovillagers are so intertwined that there is almost no chance to ignore a conflict once it appears, and if it is not solved might result in someone's leaving. Thus, the community has to deal with a lot of personal issues that people bring into the community, which almost inevitably manifest themselves in a close cooperative living, as well as new challenges that people face in a community setting. That is why O.U.R. Ecovillage and many other similar communities work on creating the space where people can show their real selves and hopefully with the support of the community face their problems and resolve them. Council, men's and women's circles, and even short check-ins before most meetings allow people to be open and discuss important personal and community issues. Walker (2005) describes how such close communication strengthened connection in their community:

> Check-ins gave us a terrific opportunity to learn more about each other. Typically each person had five to ten minutes of uninterrupted time to talk about what was going on in his or her life. […] good ground rules ensured that people's boundaries stayed intact. (All sessions were confidential, and people agreed to remain respectful and not interrupt whoever was speaking.). I can tell you that there is nothing quite like having the undivided, supportive attention of a group of peers. The attention alone was transformative - like having a favorite friend listen to you well. It challenged me to look clearly and honestly at my own life, recognize patterns, celebrate the good things, and ask for support for the difficult times. I found it a real joy to share at this level with people whom I also saw in many other contexts, and whom I expected would be part of my extended family for the rest of my life. And I'm not the only one who benefited. (p. 122)

And that is when human resource development and capacity building obtains another quality in the frames of the ecovillage. In the paradigm of the ecovillage, capacity building is not evaluated only by the amount of technical skills added to the community. Rather every person is considered to be an important element of the whole system and his or her wellbeing affects the health of the community; in this case it is true to say that a chain is only as strong as its weakest link. That is why a community spends time and efforts to empower, support, and heal every resident. A person's skills, beliefs and background is not important as everyone is welcome to join the ecovillage for any period of time .There is a sense of intrinsic value of every human embedded in the norms of the community:

> You can't grow food by yourself, you can't really grow healthy buildings by yourself, you can't really grow amazing kids by yourself. This singular nuclear individualistic family dwelling, you know a couple with 2.5 children and a station vagon and a truck, it is not working. So we are trying to help transform the North American culture around that; though it is a little bit hard […] The villages I grew up in, there was a town drunk, there was the crazy person, there were grandmothers that were really bossy. Now those people wouldn't last; you'd kick them out. You'd say: 'There is no room for you'. But in the villages I grew up there was a kind of some strength in that diversity. Even the crazy person had this great deal of wisdom every so often and kept you on track with certain things. And the drunk made sure you were always looking up for everybody 'cause you never want him to fall of the bridge or something in the middle of the night. "So where is George? Let's get him back here." All of us were once important, and now we've been segregating into crazy roles and things - you only want this kind of person in your community. (Brandy, personal interview)

The ecovillage offers sacred space where everyone can belong and feel accepted, where community spirit bonds people and gives a deeper meaning to the notion of a community.

Human resource development in the ecovillage is built on the understanding of every individual, his/her strengths and weaknesses, and trying to create a space where that individual can feel accepted and useful. It is an ongoing struggle for the community and the turnover of residents remains high; however, the ecovillage is constantly working on adjusting the current system to meet everyone's needs.

This section shows how O.U.R. Ecovillage fulfills the criteria mentioned in Agenda 21. And even though the community is small and has little power to influence policies in the region, it still found a way to implement sustainable practices on many levels and have a positive influence on the SD in its area. It is worth noticing that in spite of some shortcomings, for example, not complete energy self-sufficiency, O.U.R. Ecovillage took principles presented in Agenda 21 to another level. Instead of just 'ticking the boxes' of what SD is in terms of Agenda 21, O.U.R. Ecovillage approached SD on the much deeper level of values and principles (more discussion in the next section). Whether it is construction practices or human resource development, the community is guided by its vision of "Sustainable well-being for the land, ourselves, and our worldwide village" (O.U.R. Ecovillage, 2012, p. 3). This vision statement is built on the community's emphasis on the sacredness of all living beings, where respect for the self, individuals, and the land are of an equal importance. In light of this profoundly deep approach to SD, Agenda 21 seems to address only the technical aspect of sustainability and does not provide the main tools that can motivate individuals or communities to implement SD. Thus, a community like O.U.R. Ecovillage requires a more holistic framework to measure the depth and width of its approach to sustainability. The following table summarizes the key findings of Agenda 21 criteria in O.U.R. Ecovillage.

Table 2 Summary of Key Findings on Agenda 21 Criteria

Agenda 21 principles	Core aims	O.U.R. Ecovillage sustainable practices	Comments
1. Provision of adequate shelter	To provide access to affordable and ecological housing	• Use of natural, salvaged, recycled, reused, repurposed, waste materials • Labor input through workshops, work parties and internships. • Cooperation with educational institutions, industries, governmental and non-governmental organisations. • Application of simple and safe techniques	O.U.R. Ecovillage demonstrates practical tools on how to construct sustainable housing by making it healthy, affordable and ecological.

		• Focus on small scale houses	
2. Human settlement management	To develop environmentally sound employment and to support rural-based and small-scale economic activities	• Establishment of RRCD zoning that allows multiple business activities on site • Internal economy is supported by educational programs, ecological tourism, private businesses • Support of local economy	Ecovillage has the potential to provide job for all its residents but currently it is in the early stage of development and grants provide a substantial part of the community's financial resources.
3. Sustainable land-use planning and management	To provide access of all households to the land through the sustainable planning and land use and to enable communal management of the land where suitable	• Consideration of topography, ecological aspects and biological aspects of the land during the planning stage • Organization of numerous workshops for planning the physical layout of the ecovillage • Development of the relationships with governmental organizations • In cooperation with the local government development of the new RRCD Zoning • In transitioning from private land ownership to multi-stakeholder member ownership model	The community introduced an innovative model that practically shows what sustainable land-use might look like.
4. Integrated provision of environmental infrastructure	To implement ecological technologies that support health and life standards of people as well as wellbeing of the ecosystem	• Recycling • Composting • Reusing and repurposing of 'waste' materials • Use of biodegradable products • Composting toilets • Rain water collection • Natural filtration of waste water	O.U.R. Ecovillage works on creating integrated system that uses the waste created by human activities, purifies it in situ and returns back into the system.
5. Sustainable energy and transport systems	To apply alternative sources of energy and energy-efficient technologies	• Part of the energy is supplied through the photovoltaic system • All residential housed are planned to be off-grid • Communities eatery will be net-zero • Car-share coop is in the planning stage • Car-pooling and car-sharing is practiced in the community	The ecovillage extracts part of the energy from renewable resources but it is not enough to satisfy household and transportation needs. However, it uses energy-efficient techniques in the design.
6. Human settlement planning and management in disaster-prone areas	To maximally prepare for the possible disasters through developing 'culture of safety', pre-disaster planning and post-disaster	• Use of special strengthening methods and an earthquake resistant design in the construction. • Independent water supply • Food storage • Wood supply • Developed emergency map and	The ecovillage has incorporated a few disaster mitigation techniques, but, it does not have a detailed disaster-response plan. However, the ecovillage setting in itself is a

	reconstruction.	immediate action plan in case of emergency	powerful post-disaster restoration environment.
7. Sustainable construction industry activities	To implement policies and technologies that support sustainable construction practices	• Use of natural, local, recycled, reused and/or locally processed materials • Use of energy-efficient design • Implication of low-tech or labor-intensive building techniques • Employment of local work force • Protection of sensitive ecological areas • Exchange of knowledge through workshops, seminars and internships	The ecovillage is not only integrating ecological construction techniques it is also working on changing policies that restrict implementation of more sustainable practices
8. Human resource development and capacity-building for human settlement development	To advance person and technical skills of people who are involved in a community development	• Organization of various workshops on site • Residents are provided with free or reduced rate trainings regarding sustainable community development • Cooperation with governmental, private sector, academic, and grassroots organizations	The ecovillage encourages and tries to support financially its residents to broaden and advance its personal and organisational skills. The cooperative life itself is a constant training.

The eight criteria provided by Agenda 21 are important for the sustainable community development; however, the list cannot be considered exhaustive or complete. Thus, the following sections will discuss other critical aspects for SD found in O.U.R. Ecovillage.

6.2. Beyond Agenda 21: Expanding the Frames of Sustainable Development

> The truth is that although huge advances can be made through new technologies, they will not be sufficient for sustainable development. Nor will changes in technology and production systems all be winwin outcomes, at least not in the short term. This means that we need changes in lifestyles and the attitudes, values, habits, and aspirations that underpin them. (Christie, 2002, p. 1466)

> How do you develop capacity for those people? Do you take on the co-op? How does our group build our capacity more? This is very interesting 'cause you can't really teach people to cooperate, it's a value. And there is always this kind of disagreement in popular education models of whether you can teach values or not.

> Can you actually teach values? Can you set up a circumstance where people grasp their own value system under the circumstance? (Brandy, personal interview)

The eight criteria of Agenda 21 discussed above cover a vast area of human activities and if followed may lead to a more ecologically sound, economically stable, and socially just society. However, the question that arises is: Are these principles enough to make society really sustainable? Some researchers (e.g. Cairns, 2002; Christie, 2002; Orr, 2002; Shepherd, Kuskova, & Patzelt, 2009) are convinced that sustainability is not possible without the change of values on individual and collective levels: "In order to achieve sustainable use of the planet, some globally shared ethical values are essential" (Cairns, 2002, p. 16). This idea echoes throughout the data collected in O.U.R. Ecovillage where the residents often mention terms such as sacredness, respect, inclusion, and consciousness. Living in the community even for a short time brings to attention one undeniable fact – ecovillagers are trying to be the change they want to see in the world. And this change comes not only from the application of environmental technologies or ecologically sound techniques, but more so it is the result of much deeper change happening on the level of personal values. This transformation first appears on the level of relationships with each other, then extends to relations towards other living beings and lastly to the earth as a whole. These ethical principles when applied to the TBL can shine a light on the underlying basics of sustainability.

6.2.1. Social Sustainable Development

Social SD fosters trust, solidarity, and cooperation in a community (Bijl, 2010; Bridger & Luloff, 2001; Dale, 2011). These characteristics ensure not only wellbeing but also resilience and adaptable capacity of a human settlement (Bijl, 2010). In other words, social sustainability aims to construct an environment where people can establish deep connections with themselves and others and secondly realize their potential in a beneficial way.

Throughout human history survival of individuals almost entirely depended on the cooperation and mutual support inside a community. It was common good that ensured personal stability. Modern technology allowed individuals to have more segregated lifestyle where building and sustaining community bonds became rather a choice than a necessity. An

individualistic lifestyle offers various advantages such as more personal space, individual choices, and fewer conflicts. However, neglecting the importance of a community all together is like throwing out the baby with the bath water. Community setting offers more valuable attributes than just physical support; it provides a sense of belonging and acceptance. This hardly measurable principle is an important underpinning not only for individual well-being (Hale, Hannum, & Espelage, 2005) but also for the welfare of the society in general (Orr, 2002). Clark (1995) reasons why community spirit is such an important building block for the well-being of the society:

> Those cultural worldviews that promote a sense of "belonging" of members to the community through cooperation, neighborliness. and unconditional acceptance of each individual, are likely to be stable and to have low levels of conflict. Such societies usually offer members not only physical and psychic security, but also sacred meaning—a personal identity within a transcendental community. (p.76)

On a contrary, societies where feeling of belonging is not cultivated are prone to more inner conflicts, violence and drug abuse (Clark, 1995). Recognising the importance of this principle, ecovillages are trying to create an environment amidst the western culture where a sense of community can rise from the ashes. It is the longing for community that brings most of the people into settlements like ecovillages (Christian, 2007; Sevier, et al., 2008) and it is the feeling of belonging that gives people strength to continue on the rough path of SD. Franklin (2004), a long-term resident of a co-housing community, emphasises that living in a community is not easy but it is this feeling of interconnectedness and closeness that make it worth all the efforts:

> Maybe the experience of actually getting to be close to people (or even the possibility of being close), of sharing our lives together, overrides any other obstacle that might arise. Maybe our need for connection, family, and tribe is so deep and primal that it makes everything worth it. Instead of living our lives through televisions or computers, we desire real, face-to-face conversations. Rather than living vicariously through fictitious characters or silently stewing in cynicism, we choose to attempt to resolve our difficulties and work together. We chose not to play it safe, to find a way to not be ignorant and to be blissful, and to meet basic human needs that are seldom met in our culture. (p.28)

Daily practices in the cooperative lifestyle are a profound tool on its own to strengthen the inner fabric of the community. For the residents of O.U.R. Ecovillage, community life enfolds

itself in many forms: it can be building someone's house or raising children together. Working in groups, volunteering, participating in the organization of community events and simply sharing the common living space, all of the above develops closer relationship among the ecovillagers. Even such simple things as being able always to find somebody to talk to just by going out of your own house brings a deep sense of security and belonging. In O.U.R. Ecovillage the feeling of belonging is especially enhanced through close communication. Council meetings encourage people to leave the masks behind the door and talk from the heart. This intimate communication creates a feeling of acceptance. It is strengthened even more during women's and men's circles that invite people to share the most personal aspects of their lives. Hearthkeepers of the ecovillage appear to believe that these practices create an atmosphere of trust and sacredness where every individual is seen beyond social labels and is appreciated for who he/she is. Brandy, one of the hearthkeepers of the community, calls this process 'awakening village heart and mind' (Peak Moment, 2011).

> How do you create a love story about The Village? 'Cause somewhere it is still alive in our being that people, they have a yearning for community, they want this kind of romance that they have about when everybody cared, especially about each other – 'and then I would belong'. (Brandy, personal interview)

This process is also called building community spirit or revival of the sacred meaning of a community.

Pargament (2008) states that sacredness is one of the intrinsic qualities of a community lifestyle and is deeply embedded in the everyday life. The ecovillage does not have a dominant spiritual practice; however, the sense of sacredness is woven into many areas of the ecovillagers' lifestyle. First, it is the respect for every individual and everyone's input. The sense of reverence for human spirit can be seen in such practices as weekly appreciation walks. During this short half an hour ceremony everyone on the site gathers to appreciate each other's contribution. Gratitude circles before each meal is another powerful tool to bring people closer and show gratitude towards each other and different aspects of a community lifestyle. Second, the community treats other cultures and beliefs as sacred. In the O.U.R. Statement of Sustainability individuals are encouraged to respect and learn from other cultures and traditions and to study one's own cultural inheritance. Community itself is treated as sacred space where everyone is interconnected and interdependent and constitutes a single organism, however, where everyone's

voice is heard. Work in the community is also treated as sacred as it represents one's values and beliefs and should benefit ‘the quality of all life’ (O.U.R. Ecovillage, 2012, pp., p.5). Notion of sacred can also be seen in the approach towards past, present, and future generations and the link between them. It is also strongly present in the reverent attitude towards the land and nature (more discussion in the next section). Jackson and Svensson (2002) state that spirituality, personal unfolding, and connection with nature are as important for an ecovillage development as sustainable ecological and economic practices. Kirby (2003) confirms that sustainable life is dependent on the sense of connectedness to the land, community, self, nature, past and future generations. Data shows that O.U.R. Ecovillage uses all of the above relations as a base for SD.

Apart from inner relationships, O.U.R. Ecovillage is working on creating an environment where a person can develop holistically. The concept of a sustainable community implies an inclusion of a diverse set of activities that insures maximum self-sufficiency of a settlement. O.U.R. Ecovillage does not strive for the complete self-reliance; however, it considers important to have a set of practices that ensures sustainability of a community. It is related not only to the physical activities such as farming and building but also to the invisible infrastructure such as communication and decision-making. The residents are exposed to various courses and workshops that are taking place on site. Moreover, the ecovillagers get discounts and are encouraged to participate in the educational events. In some cases the community paid for the internal and external courses taken by the residents.

A few interviewees stated that for a community to create the strong social fabric it is important to create an environment where people are heard and have a chance to contribute. The decision-making model used in the ecovillage involves everyone in the process of developing the community that ensures not only inclusion but also a sense of responsibility. Furthermore, informal decision-making meetings such as weekly community meetings or council circles create a supportive community atmosphere where everyone has a right to express their personal opinion on any aspect of personal or ecovillage living. The format of council brings everyone on the same level and even a visitor has the right to express his/her concerns or suggestions. These meetings are an important pre-stage for decision making as they help to hear everyone's voice clearly. Even children have a chance to participate in meetings and express their opinions, therefore, from a young age learning how to effectively communicate and resolve conflicts.

O.U.R. Ecovillage's vision includes the creation of space where every individual has a place and can contribute to the overall wellbeing of the community. As a result, this strategy establishes a network of mutually benefitting relationships and also fosters the feeling of inclusion and personal realisation in a society. As some interviews show, the residents are motivated to create a space where differently-abled or socially marginalized individuals can feel accepted and useful. The ecovillagers are also attentive to many personal needs individuals have and try to satisfy them, one of the examples is various dietary choices offered in the community. However, the community is still in its early stage of development and it is not always physically or financially possible to provide according to everyone's needs.

O.U.R. Ecovillage never intended to be an isolated community, but it rather worked on creating new bridges. These bridges intend to connect generations through youth events, children's camps, educational programs or daily community events. Connections are also being built to bond cultures through festivals and workshops. O.U.R. Ecovillage is also known for linking and fostering cooperation between organizations and institutions that resulted in the development of innovative models and new policies (Zamchevska, 2012). Consequently, other communities and individuals can benefit from the created possibilities and shared experience.

6.2.2. Ecological Sustainable Development

The second value necessary for sustainability to be rooted in a society's worldview is respect for nature and other living beings (Berke & Conroy, 2000; Cairns, 2002; Kasper, 2008). Natural environment is a vibrant life support system that provides a habitat for all living organisms (Berke & Conroy, 2000); therefore, a healthy ecosystem is critical for humans' wellbeing (Baker, 2004; Cairns, 2002; Caldwell, 1972). Christie (2002) emphasizes that mankind should substitute a 'politics of exploitation' of the earth and its resources with the 'politics of reverence'.

This message can be traced in O.U.R. Ecovillage's lifestyle. Reverence for the earth is grounded in the community's vision and it branches into many practices. In the case of the ecovillage, respect means not only 'non-harming' attitude but actually learning from nature. As only by acquiring a deep understanding of the natural systems, humans can really start

cooperating with nature (Orr, 1994). In the vision statement of the community, the well-being of the land is stated before personal and societal wellbeing. The importance of Earth and natural systems repeatedly appears in O.U.R. Covenant for the Earth: “Work toward a common path and live a deep commitment to self, others and the earth; practise nonviolent action in defence of the Earth; know the basic universal laws of ecology and apply them to a specific bioregion and be able to extend such understanding to others.” (O.U.R. Ecovillage, 2012, p. 6). The results of the study show how these principles are implemented on practice.

First, one of the main credos of O.U.R. Ecovillage is ‘work with nature, not against’. The fact that residents devoted the first year of the ecovillage establishment to observing and listening to the land, shows how much respect and consideration the ecovillagers have towards their natural environment. During that year residents in cooperation with scientists surveyed the area and created a detailed map of the ecological features of the site such as rain water movement, sun light exposure, and biologically sensitive areas among others. As a result, zoning, site planning and buildings’ design were based on the obtained information.

Second, O.U.R. Ecovillage believes that elements in a system should be maximally connected, which creates a healthy and beneficial interdependent mechanism. The settlement incorporates permaculture practices in various areas of the development. Permaculture teaches to recognise the natural design principles and incorporate them in human settlements. One of the main principles in permaculture is to create connectivity of all elements present in the system in order to ensure resilience, adaptability, less input, maximum yield and minimum waste (Holmgren, 2002). This principle can be observed in water collection and treatment system used on site, where a large portion of water is being caught through rainwater collection system, utilised using biodegradable products, treated naturally and returned back to the system.

Third, O.U.R. Ecovillage strives not only to use ecological materials, but also to reuse and recycle a lot of mainstream ‘waste’ materials. Most ecovillagers believe that there is no ‘away’, that throwing something to the landfill is not a solution. Instead humans should look for ways not only to minimize the production of toxic materials but also to utilize the existing waste. This principle is applied in the construction practices of the ecovillage. Old tires, used styroblocks, damaged drywall, these are just a few examples of the numerous waste stream materials that the

community reuses in order to prevent leaching of toxic materials into the environment or decrease the need for more production.

O.U.R. Ecovillage does not intend to integrate the most high-tech ecological equipment. On the contrary, the community attempts to create low maintenance and economical systems that can be easily adapted in different parts of the world by communities of various sizes and financial capabilities. O.U.R. Ecovillage acts as an educational laboratory for SD because it strives to combine as many various sustainable practices as possible in one settlement. Ecovillages are models of holistic design and not singular ecological practices.

Behind purely ecological principles used by the ecovillagers lies a deeper connection with the land. The intention for the site to be treated as sacred is encoded in the description of the ecovillage: 'O.U.R. Ecovillage is a sacred space where permanent residents and short-term visitors co-create sustainable community" (O.U.R. Ecovillage, 2012, p. 3). That attitude is expressed in many ways. For example, there is a small elevation overlooking the ecovillage, called Vision Hill, which is used for gatherings and various ceremonies. Residents and visitors treat that space with respect. Another example is the first natural building on the property called Healing Sanctuary. It was built by the ecovillagers as well as hundreds of volunteers and is the embodiment of collective efforts invested in making the ecovillage happen. This building seems to be a heart center of the community. It is often used for individual or group yoga practices, meditation, women's circle, council, and even child birth. A sense of sacredness of the physical space of the community was even strengthened with the launch of Green Burial project, which designates a part of the community's land as scattering grounds. Knowing that remains of someone's dear people are resting on that property changes people's approach to that space; as a result, the feeling of sacredness of that place is strongly felt.

This reverent approach to nature significantly changes the way ecovillagers treat the land and surrounding ecosystems. The study shows that people who regard nature as sacred were more willing to protect it (Tarakeshwar, Aaron, Pargament, & Mahoney, 2001). Kasper (2008) emphasises that land ethics is crucial for the society to transition towards sustainable lifestyle. This moral underpinning defines to a large extent human thoughts and actions in regard to their environment. In case of ecovillages, respectful attitude towards the natural environment is

demonstrated not only by protecting it, but also, by considering land, plants, and animals as a part of a community, therefore, taking responsibility for their wellbeing.

6.2.3. Economic Sustainable Development

A strong local economy is an important element of a sustainable community (Keiner, 2006; Roseland, 2000b). Sustainable economy is built on maximum self-reliance, incorporation of local skills, regional cooperation and production, as well as stewardship over local natural and financial resources (Bridger & Luloff, 2001; Mapes & Wolch, 2011; Morehouse, 1997; Roseland, 2000b). O.U.R. Ecovillage works in different directions to establish a local sustainable economy in the frames of the community. The community's financial, ownership and governance system is built on the co-operative model. Findlay (2012) states that the co-operative paradigm is based on the same principles as SD theory, as it considers social, ecological and economic aspects of community development.

As was mentioned O.U.R. Ecovillage does not intend to become completely self-sufficient. Whereas a minimum self-reliance is critical for a community's survival, the ecovillage emphasises the importance of developing a wide network of business partnerships with local enterprises. This cooperation is important not only for minimizing the ecological footprint but also for strengthening local economy in the region through the employment of local labor, supporting small businesses and investment in sustainable organizations.

The gift economy is another approach practiced in O.U.R. Ecovillage converting the conventional economic system into a sustainable one. The gift economy is based on non-monetary exchange of services and was practiced by humans for thousands of years (Mauss, 2002; Sahlins, 1972). This system is easier to apply in the community setting and can be used for child care, shelter construction, or health care services. The gift economy provides a large degree of support and security for low income families and differently-abled individuals. This system enables everyone to satisfy a part of their needs and contribute to the development of the community without being dependent on money.

The lifestyle of the ecovillagers requires much less spending, therefore reduces the need for the income. An ecovillage setting alters the concept of wealth accepted in the western society

as there are many aspects of a community lifestyle that no monetary value can be assigned to. Sahlins (1972) on the example of hunter-gatherer societies claims that the idea of affluence can be viewed from perspectives different than the modern:

> The world's most primitive people have few possessions, but they are not poor. Poverty is not a certain small amount of goods, nor is it just a relation between means and ends; above all it is a relation between people. Poverty is a social status. As such it is the invention of civilization. (p.37)

In the modern western society the trend of fewer possessions and richer life quality was coined as voluntary simplicity or intelligent consumption (Simon-Brown & Maser, 2010). It became one of the underlying principles of the ecovillage concept. Voluntary simplicity is also one of the important values of O.U.R. Ecovillage's lifestyle and it is embedded in the community's covenant: "Enhance quality of life by consuming less and living simply" (O.U.R. Ecovillage official website, n.d.-b). And even though for many outsiders this lifestyle might seem deficient and underprivileged, I have heard pride in the voices of the ecovillagers for being able to create a rich lifestyle without many modern 'necessities':

> There is a sense of wealth in my lifestyle here, which is made up of the richness of the relationships, the quality of people I am surrounded with, the quality of relationships my children have with the diversity, the fact that I am in a beautiful environment living healthfully -- all of that. Well, technically living below the poverty line, but I have work, which is meaningful and inspiring. (Victor, personal interview)

The residents of O.U.R. Ecovillage emphasise that community lifestyle allows them to significantly decrease expenses while at the same time increase life quality, examples can be local organic food, combination of child care with on site work and rich social life. Residents recognise that whereas income is necessary, it is crucial to create balanced work/private life relationships.

6.2.4. Being the Change: Educational Mission of O.U.R. Ecovillage

A value shift is very complicated but extremely important foundation for SD (Cairns, 2002; Christie, 2002; Clark, 1995). O.U.R. Ecovillage is working hard on promoting this shift, first, living according to the sustainable principles and, second, by educating the public. O.U.R.

Ecovillage as many other ecovillages placed educational mission as one of the main objectives. It is believed by the residents and the outsiders that settlements like O.U.R. Ecovillage are an important awareness raising and consciousness changing centers. Besides providing theoretical knowledge about innovative and alternative sustainable practices, the ecovillage acts as a living laboratory of what they preach. Ecovillages are ideal classrooms because they are solution oriented, open to innovative practices, and adaptable to changes (Dawson, 2006). Furthermore, O.U.R. Ecovillage does not try to hide its mistakes and residents openly discuss the errors and challenges inside the community. Ecovillages eagerly share their experience and acquired knowledge through networks, workshops, conferences, and visits. O.U.R. Ecovillage does not claim to be a sustainable community, as the residents consider SD a dynamic process encoded in the everyday work and not a static state.

One of the hearthkeepers says that a value transformation happens through life experiences, and that is one of the O.U.R. Ecovillage's goals – give people a chance to taste another lifestyle:

> If you talk about how bad it is to use toxic building materials, people won't really change their values; they'll think it is interesting and they will think about it, but they won't shift their underlying values system. You actually have to create an experience that will help people to do that. You can set a framework, an immersed learning environment like this where people can smell the trees, and shower in a crazy outdoor shower, and they can sleep on the ground, and feel the heartbit of the earth, and eat food that went from here to there and they can even help cut it up and 'Oh my God, a tomato that tasts like a tomato!'. You can create that environment, and there will be people and relationships, and songs around the campfire; there will be something that probably reawakens in every person. (Brandy, personal interview)

The ecovillage offers a space and possibility for everyone to at least try this lifestyle. A person can stay in the community or carry the experience into the outer world and make a change in his house, neighbourhood or on a much larger scale. The excerpt from a testimony of a building intern who spent a summer in the ecovillage proves it:

> I have learned a tremendous amount about myself, community, cooperation, leadership, integrity, honesty, and I have found out what it is I want to do and it's not build cookie cutter houses for a profit. What I am going to do is build affordable natural, healthy homes, for people that deserve them and need them. (Kozak, 2012)

Numerous testimonies about how much people's worldviews and lives change since their first encounter with O.U.R. Ecovillage show the great impact that the settlement has on the outside community. The ripple effect created by the ecovillage causes changes not only on the personal level but, as was mentioned, on the level of policies and regulations.

6.3. Challenges of Sustainable Development in a Community Setting

Challenges faced by the residents of O.U.R. Ecovillage were reported through interviews, focus group, document analysis, and observations. All obtained information can be grouped into four categories: long term/short term internal and external challenges.

6.3.1. External Challenges

The main short-term external challenge faced by the residents of O.U.R. Ecovillage was to find and purchase the land. This is the common challenge for many ecovillages (Christian, 2003; Kasper, 2008). The main reason for it is price, regulations, and a size of the land. Ecovillages intend to create a maximally self-sufficient community in terms of economy, social activities, and basic resources such as food and energy (see section 5.3. for more details). That is why most ecovillages are located in rural areas where the land is cheaper, regulations are more relaxed, and large plots of land are available. However, very few ecovillages are even close to complete self-reliance meaning that some residents have to shop and work outside; therefore, close proximity to larger centers is necessary. O.U.R. Ecovillage was planned as a demonstration site for different sustainable practices that required a large size of land in a rural area, but the community's mission to educate and collaborate with the wider community necessitated the right location. The initial group of O.U.R. Ecovillage establishers, which was formed more than 12 years ago, had to go through a lot of negotiation in order to buy the land the community is located on right now. The previous owner was suspicious about the intentions of the ecovillagers and preferred to sell the land for the development. He changed his mind only when the ecovillagers emphasised the importance of preserving the land and its natural habitat for future generations. As a result, the previous owner not only agreed to sell the land but he also donated

25% of the original price (Site tour). However, financing the mortgage of the land was and remains one of the major challenges faced by the ecovillagers.

The roots of the mentioned challenge lie in the long-term challenge ecovillagers are still working on, which is societal judgement. This problem was very prominent in the beginning of the ecovillage's development when people were very suspicious of the primary motives of the community and sometimes even openly objecting to establishment of the community (Site tour). Even though in recent years the ecovillage was visited by thousands of people, some still doubt the community's intentions. Public prejudices towards an alternative lifestyle results in serious obstacles, such as regulatory processes, for the community.

One of the main external long-term challenges the ecovillagers are constantly confronted with is lack of support of innovative sustainable models by the regulatory processes. O.U.R. Ecovillage experienced this paradox acutely in at least three situations: i) when O.U.R. Ecovillage developed a RRCD zoning that was rejected as simply too complex and impossible; ii) when the community had to negotiate with local authorities about low impact construction practices, which were not supported by the local building code; iii) a struggle to gain support of a new social responsible ownership model developed by O.U.R. Ecovillage Cooperative in order to allow comprehensive governance of the land. All of the mentioned processes took a prolong period of time and a lot of negotiations before being approved. This problem is closely correlated with another external obstacle faced by O.U.R. Ecovillage, which is disinclination of local authorities to cooperate. In some instances, it was a simple reluctance to change the existing regulations whereas in others the collaboration was impossible due to the inflexibility of the regulatory system; the approval of comprehensive models required changing of both. Though this deficiency is clearly felt in an ecovillage setting, this problem is intrinsic to the whole system and impacts all types of Canadian communities:

> It [the challenge of the sustainability implementation] is multi-faceted and involves, among other things, a lack of coherent dialog; congruence between political levels; political will, and a lack of 'sustainable development' ethos among various governmental levels and community stakeholders. Many experts have identified time and time again that one of the major barriers to the implementation of sustainable community development is governance, and the shrinking of public space for meaningful dialogue around critical public policy. Others have referred to fundamental disconnections - between federal, regional and local governments,

> between and urban communities and, critically between the business and research communities. (Dale, 2007, p.102)

As a result of inflexible regulatory system in Canada, O.U.R. Ecovillage is in constant battle to change the existing policies and introduce alternative sustainable practices.

6.3.2. Internal Challenges

However in spite of the seriousness of external challenges, the ecovillagers agree that the internal difficulties are much more complicated and take longer to change. Among short-term internal challenges faced by the community the most challenging is the establishment stage. It requires a very determined group of enthusiasts that often has to confront the mainstream culture. It usually takes either a lot of determination and planning or naivety and passion; the latter was the case with O.U.R. Ecovillage initial group. In the beginning the group consisted of 14 people (site tour); however, only one person from that group is still living in the community, which shows the high percentage of turnover in the community. Another challenge that the ecovillagers faced in the beginning was finances, as such projects are not subsidised and often require a large initial investment. The community is still actively developing and that requires significant financial capital.

The primary long-term internal challenge that makes life in the community setting strenuous is what ecovillagers might perceive as the individualistic culture practiced in the western world for at least a couple of generations. One of the ecovillagers called it ‘detachment disorder’, where no sense of belonging leads to lack of responsibility and disinterest to invest in a community development (Focus group). As was discussed in section 6.2., ecovillages in general and O.U.R. Ecovillage in particular was designed to reverse this trend. However, the settlement is still in a constant struggle to teach people how to live and work together, how to transition from ‘me’ to ‘we’ consciousness (Victor, personal interview). Unlearning the embedded cultural norms takes long time and efforts (Kasper, 2008) and many people are neither prepared nor willing to do that. As a result the community has a very small core group and high turnover. The lack of people who are ready to fully commit to the sustainable lifestyle offered by the community creates a lot of instability and inconsistency in the community’s development.

O.U.R. Ecovillage attracts numerous visitors and residents, however, the community lacks people who are willing to accept full responsibility for developing the community. This can be explained to some degree by discomfort and limitations present in the voluntary simplicity and cooperative lifestyle of the community discussed in the previous sections. As interviews show, a cooperative lifestyle in the community is very demanding and besides numerous meetings and mandatory weekly volunteering includes a lot of shared responsibilities and challenges. As a result some people feel too pressured and stressed to stay in the community and return to a conventional lifestyle where they can practice some environmentally sound practices but have a more individualistic lifestyle. As Kaplowitz describes life in a community is not an easy path: "The community way of life is not for the faint of heart nor the weak of spirit. It is a warrior's path, for those whose vision (or bullheaded stubbornness) is stronger than their desire for comfort" (as cited in Christian, 2007, p. 219). Moreover, there are numerous unrealistic expectations by newcomers, where after a short period of enthusiasm many newcomers leave disappointed. Many outsiders who want to join an ecovillage have an idea that it would be easier to live in a community with same-minded people who have similar values. Newcomers expect support, collaboration, understanding, and a lot of good time together. And all of that can be found in an ecovillage setting, but it often comes with a lot of extra responsibilities, commitments, conflicts, and serious personal work, as well as less personal space and time (Focus group). By nature, intentional communities gather people with various and sometimes radical perspectives that make it even harder to develop and implement a common conceptual framework. According to residents, that is one of the primary reasons that so many ecovillages do not survive (Focus group).

Another long-term challenge in O.U.R. Ecovillage is the lack of knowledge about sustainable living. People do not have complete understanding of how to combine economic, social, and environmental aspects of SD in real life. One of the outcomes of that is the difficulty to balance a viable economic system and community's relationships. The ecovillage draws people who desire to devote its life to community; however, in order to fulfill its primary mission the ecovillagers are in constant struggle to make ends meet. Though expenses in O.U.R. might be less than in urban centers it still requires monthly on-site fees, rental payments and food costs. At the same time the number of jobs on site is limited and often seasonal. Thus, many residents

have to constantly commute to larger urban centers. And as one of the interviewees stated, people who work outside often feel detached from the community's life as a lot of activities and meetings are going on daytime and require a full time presence on site.

Both internal and external challenges show how difficult the path of an alternative lifestyle can be in a Canadian context. The problems of O.U.R. Ecovillage revert back to the discussion of values mentioned earlier in this chapter. The opposition to the mainstream culture with its prevailing norm of nature domination and individualism results in a constant struggle of the ecovillagers. These norms influence the community not only from the outside but also from the inside as residents have to learn how to live in a community setting.

The following chapter provides a summary of the results obtained from this study. It bridges the conclusions of the research and the study’s primary objectives. It also elaborates on the basic recommendations as well as further discussion and future research.

CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

7.0. Introduction

This chapter provides the summary of the study results in relation to the research objectives. This chapter also offers ideas about further discussions and future research on SD practices implementation in communities or neighborhoods as well as more detailed studies on various sustainable practices used in ecovillages.

7.1. Addressing the Research Objectives

7.1.1. Objective One - Agenda 21 Principles in the Ecovillage Setting

Chapter 7 of Agenda 21 on sustainable human settlement development encompasses only eight fragments of the wide spectrum of SD practices. However, even these few elements are not easy to integrate in one system, as the document covers areas of human activities from ecological infrastructure and sustainable construction to affordable housing and local economies. O.U.R. Ecovillage does not own the most innovative green technologies nor is it net zero in waste or energy use. Nonetheless, the ecovillagers strive to create an environment where every small detail is worked into the tapestry of the community at the same time complementing the bigger picture of sustainable living. Either a person with a unique talent or a piece of salvaged material, the community is working on creating a space for everyone and everything to be useful. O.U.R. Ecovillage uses multiple practices and tools to address objectives stated in the document, and in spite of difficulties the community manages to demonstrate how all mentioned criteria can be integrated in one comprehensive model. Besides presenting sustainable practices adapted to local conditions, the community also teaches holistic design principles that can be applied worldwide.

7.1.2. Objective Two - Key and Unique Elements of the Ecovillage Approach to SD

Data collected presents a few important approaches that O.U.R. Ecovillage has towards SD. First, O.U.R. Ecovillage places importance on values as the basis for the settlement development. The community's vision and guiding principles are built on the attitude of reverence for individuals, community, and the earth. This approach can also be traced in the community's practices and overall lifestyle. The value change is considered to be critical for a western society to transition towards SD (Cairns, 2002).

Second, O.U.R. Ecovillage considers cooperation as a vital tool for SD. Whereas some authors emphasise on the importance of completely self-reliant communities (Trainer, 1995), residents of O.U.R. Ecovillage are devoted to creating healthy relationships and a strong local social fabric that ensures the resilience and adaptability of the region. O.U.R. Ecovillage does not strive to achieve self-reliance but is committed to create a healthy integrated network with the local population. Such mutually benefitting relationships insure stability and resilience that would be very difficult to achieve for an isolated settlement. A lot of work has been done with local government, private sector, educational institutions, and the wider community to create strong relationships, and new bridges. This cooperation led to the change of local policies necessary for the implementation of sustainable practices. On a long-term basis, such relationships foster trust, support and knowledge sharing necessary for a community's survival as well as societal transition to sustainable living.

Third, while O.U.R. Ecovillage chooses an alternative lifestyle, it does not intend to be isolated from the mainstream society; on the contrary, it places education and spreading the message about sustainable living as its primary mission. The ecovillagers consider raising of consciousness through education as one of the primary tools for introducing SD on a societal level. That is why so many efforts are placed first into creating a series of courses, workshops, and internships that bring on site experts in the areas of land use planning, organic farming, natural building, participatory governance, innovative ownership models and permaculture. Finally, the community understands the importance of creating a demonstration site that can offer the real life experience and practice.

O.U.R. Ecovillage demonstrates how the idea of ‘by the community, through the community and for the community’ can be the foundation of SD, where the notion of community integrated the ecovillage residents, the wider community and the ecosystem.

7.1.3. Objective Three - Challenges and Opportunities to Improve the Implementation of SD Principles in O.U.R. Ecovillage

O.U.R. Ecovillage encountered numerous struggles on the path towards SD. Among external challenges faced by the community the most prominent are: i) finding and acquiring land for the settlement; ii) dealing with inflexible by-laws and regulations regarding land-use planning, construction, infrastructure and ownership of the land; iii) overcoming societal judgement and lack of support from larger community and scepticism regarding alternative practices. Internal challenges faced by the community are following: i) financing the land ownership; ii) creating strong residential core group; iii) confronting individualist cultural norms; iv) developing strong inner economics. Many of those problems are still present and seem not easily solved as they are dominant in the prevailing culture the ecovillage is surrounded with, thus, require the shift of values on a personal and community levels. The study suggests a few opportunities to improve the implementation of SD principles in O.U.R. Ecovillage; they will be discussed in the section 7.3.

7.2. Research Contributions and Transferability

This study intended to draw a picture of the comprehensive approach to SD adapted by the O.U.R. Ecovillage. The community shows an example of a settlement that incorporated various sustainable methods in its organization, governance, land-use planning, construction practices, and everyday living. Sustainable practices integrated in the ecovillage can be adapted by other communities that are striving to live more sustainably. O.U.R. Ecovillage developed a model shaped to suit the local conditions. However, the community places a greater emphasize not as

much on the specific practices as on the design principles of SD, which are universal and can be applied in various locations.

The study also presents the main challenges faced by O.U.R. Ecovillage throughout its development. Thus, this information might be useful for other groups to prevent or prepare for the potential difficulties, as well as offer possible solutions. The study reveals that one of the main challenges faced by the ecovillagers is disinclination of local authorities to cooperate and develop new regulations that will support and moreover encourage implementation of sustainable practices. However, O.U.R. Ecovillage demonstrated a great success in building new bridges and engaging various organizations, businesses, and governmental institutions in the development of the community. Therefore, the data obtained from the research may also help groups to proceed with local initiatives towards sustainability

Findings of this study may enhance knowledge sharing across the Ecovillage Network within Canada and on international scale that may also lead to diffusion in academia and foster more detailed research on structure, principles, and practices of ecovillages. More attention of academia to the phenomenon of ecovillages might lead to an official recognition of the concept as well as development of the universal framework and guidelines for ecovillage development. On the national scale, this study adds information on SD practices implemented in Canada.

The following list describes the main principles to focus on and pitfalls to avoid in developing a sustainable project like establishing an ecovillage community. Each principle starts with an idiom or a proverb to ease the process of remembering[34]:

- **If you can't stand the heat get out of the kitchen:** People are the ones who create the community, therefore it is important to organize a group of committed residents who are educated about rules and challenges of life in a community. Awareness about the pitfalls and struggles of life in sustainable communities will ensure that the individuals who commit to the project are at least aware and at best prepared for upcoming challenges. In case of O.U.R. Ecovillage, initiators of the project were enthusiastic but not aware of all the challenges that a

[34] Idioms and proverbs were taken from the following sources: *The Oxford Dictionary of English proverbs* (Wilson & Smith, 1970), *English Proverbs Explained* (Ridout & Witting, 1968), *English Proverbs* (The Phrase Finder, n.d.).

project like ecovillage could have faces. As a result, after a few years of discussions when the time came to implement the plan into reality, only less than half of the group committed to launching the project, and only one person from that group still lives in the ecovillage. As stated during the focus group, many people have false ideas about life in an ecovillage, expecting it to be much easier than in mainstream society, and are often not prepared for upcoming challenges, as a result, they leave a community after facing unexpected challenges.

▪ **A fish always rots from the head down:** Agreeing on the vision, mission, and underlying principles and main processes (such as decision-making process, governance, responsibilities, etc) of a community ensures that the community members are on the same page. This will eliminate many conflicts and strengthen coherence in the group. O.U.R. Ecovillage has a defined mission and vision statement and guiding principles that are available for everyone through the official website and a community's handbook. Thus, people who would like to join or just visit the community are aware of its philosophy.

▪ **A little learning is a dangerous thing:** It is important to learn the underlying principles of a sustainable community development and community building in order to create a strong organization. Experience and knowledge shared by other communities is an important source to explore and learn from. O.U.R. Ecovillage hosts various workshops related to community building such as The Way of Council. The community is a part of worldwide ecovillage network. The residents participate in conferences and communicate with residents from other ecovillages that enables knowledge sharing and exchange of practices.

▪ **Haste makes waste:** Environment greatly determines the direction and details of a community's development. Therefore, a group should take time to learn ecological and social environment of a future settlement in order to prepare an accurate developmental plan. O.U.R. Ecovillage spent one whole year observing the land before starting the planning and construction. Detailed research enabled ecovillagers to design the settlement considering ecological specifications of the area.

▪ **United we stand, divided we fall:** Sustainable community development requires collaboration of all main stakeholders. Government, private sector, academia and grassroots community should be present in order to ensure resiliency and efficiency of a project. O.U.R. Ecovillage has been partnering with numerous stakeholders since the beginning of the project.

This collaboration not only ensured support of the wider community but also opened many doors and helped the ecovillage to change some regional zoning and construction bylaws.

▪ **A rising tide lifts all boats:** The notion of SD is built on the idea of the common good. By investing in the development of a wider community an individual or a settlement strengthens own security and stability. O.U.R. Ecovillage does not strive to be completely self-sufficient and isolated from the mainstream society. On the contrary, its collaboration with local businesses, educational and governmental organizations ensures mutual support; as a result the whole region advances in SD.

▪ **Every day is a school day:** Living in the community requires constant learning in the areas of alternative practices, relationship building, conflict resolution, cooperation, decision-making, etc. The idea of constant adjusting and improvement is instinctive to sustainability; therefore, a community's residents should not expect that once accepted practices will not be changed. O.U.R. Ecovillage encourages its residents to participate in courses and workshops offered in the community and beyond. Some ecovillagers expressed the idea that the life in the community requires constant adjusting, personal work, and every day learning.

▪ **Jack(s) of all trades:** A community should have a diverse skill-set to be able to ensure successful operation of the main processes in the community. As the executive director of O.U.R. Ecovillage said, “this place is only a microcosm of the macro” (Brandy, personal interview). Although the community is small, it has numerous internal operations; thus, ecovillagers have to wear multiple hats in order to ensure community’s survival.

▪ **There's a time for work and a time for play:** Work/leisure balance is often neglected as significant aspect of a community's wellbeing. However, finding equilibrium between these two major parts of a community’s and personal lives can prevent tension and burn out and as a result conflicts and high turnover in a community. Some of O.U.R. Ecovillage residents stated that numerous meetings and high requirements from the ecovillagers push some people to leave as they do not have enough time for their families and leisure.

▪ **A rolling stone gathers no moss:** It is important that people take responsibility for their community and commit to it not only during the excited initial state but especially when things get tiresome and challenging. O.U.R. Ecovillage as well as many other ecovillagers have high turnover that puts a lot of pressure on a few core members of the community. As some residents

state many people join ecovillages just to try out something new or as a transition stage in their life but very few commit completely, that creates a lot of instability in a community.

- **Rome wasn't built in a day:** A community should realistically estimate its human and financial potential and start from the most essential elements. While many people can be overly enthusiastic to start everything at once, an excessively heavy load taken in the beginning can lead to the failure of the whole project. O.U.R. Ecovillage has a lot of areas that need development and improvement. However, during my fieldwork, a few residents stated that their priority was building income-generating infrastructure, which would enable the community to develop further.

7.3. Recommendations

This section presents recommendations addressed to O.U.R. Ecovillage, the governments and academia. Recommendations addressed to the ecovillage regarding the improvement of its performance were based on my own observations and information collected from the residents. Recommendations to governments to assist the development of ecovillages are based on the experiences of the ecovillagers striving to integrate innovative sustainable practices in the region. Recommendations for academia are based on my analysis of the research gap and are directed towards deepening the understanding of SD implementation.

7.3.1. Recommendations for O.U.R. Ecovillage for Improving Its Performance

1. It is important for O.U.R. Ecovillage to strengthen its inner economy by developing more employment opportunities and all year round job placement. It will ensure higher stability and resilience of the settlement.

2. The gap between the individualistic western society and the cooperative ecovillage lifestyle seems too big for many people to be able to cross it. Therefore, the community might have to alter its internal organization and operation model and give more independence in decision-making and personal time for the residents. It will enable faster adaptability of newcomers and lessen the stress of long-term residents.

3. Data shows that O.U.R. Ecovillage suffers from the high turnover of residents and not large enough core group. In order to attract more residents and encourage people to stay, the community might have to reconsider rules and regulations in the settlement.

4. O.U.R. Ecovillage presents different models of alternative sustainable infrastructure. However, those systems are not working perfectly at the moment and require improvement.

5. In terms of energy sources, the ecovillage could introduce more alternative systems that can support the internal needs of the community, since it currently relies on the conventional energy sources.

6. According to some residents O.U.R. Ecovillage has too many personal cars on site. Planned car share cooperative might solve this problem. However, the community could introduce more hybrid vehicles in order to reduce the negative impact on the environment and its dependency on fossil fuels.

7. It is recommended that the community increases its resilience against natural disasters by developing more comprehensive disaster response and post-disaster reconstruction plans.

8. Interviewees revealed that certain buildings on site did not have proper design developed prior to the construction and most of the planning was done 'on the way'. Therefore, the ecovillagers should invest more time in thorough design before implementing future projects.

7.3.2. Recommendations to Governments to Assist the Development of Ecovillages

Various studies have shown positive benefits that ecovillages have on the environment and society (See section 2.4.3.). However, there is not only lack of governmental support of the ecovillage movement, but furthermore, there is a disinclination of institutions to cooperate with sustainable communities in order to change existent unsustainable policies. If governments start working with ecovillages and show support of such projects, it might have multiple benefits such as an increase of such sustainable initiatives that might further popularize SD practices on individual and community levels.

1. Governmental legislative support in implementing SD practices might help many existent communities to transition towards ecovillage lifestyle that might reverse the spread of suburban sprawl and other types on unsustainable settlements.

2. With the help of experts, who had practical experience of developing a sustainable settlement like an ecovillage, governments could reconsider many unsustainable practices used in planning and governance.

3. Most ecovillages are located in rural areas that suffer from out-migration to urban centers. Governments might positively influence such a problem by assisting ecovillages in creating more work opportunities for employing residents as well as people from neighbourhood areas.

4. It is a common practice in ecovillages to conserve a portion of their property in order to protect the natural habitat. Governments might assist such projects financially and encourage more communities to treat their environment responsibly and protect ecologically sensitive zones.

5. Practices integrated by ecovillages have a significantly lower ecological impact on the environment; however, those systems are often more labor intensive and/or more expensive. Therefore, if governments are interested in encouraging communities like ecovillages to progress and use alternative practices, they can assist the process by providing financial incentives.

6. Local municipalities should re-evaluate a number of existent policies that prevent individuals and communities from integrating sustainable practices.

7. If governments are interested in increasing the bumber of ecovillages in the area, it might be more proactive not only in supporting the existent ecovillages but also in facilitating the establishment of new ecovillages. This could be done by, first, changing zoning, land ownership models, and construction policies, which significantly complicate establishment and development of ecovillages. Second, governments might promote such initiatives through financial support or allocation of land for such projects.

7.3.3. Recommendations for Academia to Spread Knowledge about Sustainable Ecovillage Practices

Sustainable communities and particularly ecovillages play an important role as experimental classrooms of SD, as they show not only the adaptation of new tools and techniques but also metamorphose of human consciousness. Thus, it is important to proceed further with research regarding the design principles and sustainable practices implemented in an ecovillage setting.

1. This study portrayed only a general picture of an ecovillage lifestyle; however, any community is a dynamic system that consists of numerous interconnected codependent processes. Therefore, each of the eight criteria described in the study deserves separate research that can show on a more profound level the details of each method implemented in the ecovillage. A study that analyses the correlation and best compatibility of sustainable practices might assist other communities in designing the most efficient model.

2. Further research might address the questions of spirituality, sacredness, love, community spirit and sense of belonging, which were numerously mentioned in the community documents, interviews, and a focus group.

3. A Canada-wide study on ecovillages will produce a reference for the existent sustainable communities in the country.

4. Extensive comparative research carried out in ecovillages located in various parts of the world will produce more results on most effective, economic, and efficient sustainable practices that can be adapted in a community setting.

5. An analysis of the existing policies that prevent sustainable communities from progressing and sustainable practices from being implemented might be useful to remove the obstacles. This type of study might encourage development of laws and regulations that will not only limit the negative impact of the human settlements on the environment but also motivate individuals and communities to proceed with SD.

6. More extensive research on ecovillages might also significantly decrease public scepticism towards the notion of alternative sustainable communities and encourage people to implement some of the sustainable practices used in ecovillages.

7. Educational institutions might consider including information on sustainable initiatives established in ecovillages in the academic curriculum in order to introduce this concept on the academic level.

8. Higher educational facilities in cooperation with ecovillages could create co-op programs where students have a possibility to obtain practical knowledge about sustainable lifestyle in the ecovillage setting.

7. 4. Concluding Remarks

In conclusion, whereas there are universal SD policies, there are no such SD practices; therefore, SD should always be treated context specifically. Thus, it is not a set of methods that are critical for the SD implementation, but rather a set of principles and values.

O.U.R. Ecovillage, as many other ecovillages around the world, developed its own approach to SD and focused on the practices critical to its natural and social environments. However, it is the systemic thinking and holistic design used to plan and develop the community that is making this place sustainable on many levels. Even more important, it is the attitude of mutual respect and collaboration that in spite of hardships keeps the place alive. O.U. R. Ecovillage is the living legacy to community spirit and true cooperation on all levels – cooperation with nature, individuals, organisations, businesses and governments. The main message spread by the community is the encouragement of individuals and groups to educate themselves about sustainability, take the best available SD practices, adapt them to local conditions and share the experience with others.

Residents of O.U.R. Ecovillage do not consider their community to be sustainable on all levels, it is rather treated as a laboratory where experiments are regarded as an indefeasible part of learning. The ecovillagers consider SD as an ongoing progress that requires deep commitment and strong determination to enhance the wellbeing of people and the ecosystem. How much progress has been made by O.U.R. Ecovillage till this moment does not define its long-term success, as holistic comprehensive systems might take a long time to plan and develop and even longer to implement before visible results are achieved. And because an ecovillage model

encompasses such a diverse variety of interconnected mechanisms, a decade can hardly show the results.

The study shows that O.U.R. Ecovillage offers a profoundly deeper understanding of SD than the one described in the researched literature. Whereas the technical aspects of sustainable living are a necessary aspect of SD, it is just a tip of the iceberg. The example of the ecovillage shows that the transition towards sustainable living should be based on the value change, which recognises the importance of community, spirituality, reverence, and sacredness. This approach towards individuals and the earth motivates ecovillagers to walk the alternative path of SD and overcome the hardships of it. Documents such as Agenda 21 do not address these invisible but profound aspects necessary for the SD implementation, thus, missing the underlying block necessary for the SD implementation. Therefore, any approach to SD needs to be reconsidered by integrating the idea of value change on personal and community levels.

REFERENCES

Aberley, D. (1989). *Planning Sustainable Communities Workshop. Planning For Sustainable Development: A Resource Book.* Vancouver, Canada.

Ackoff, R. L. (1989). The circular organization: An update. *Academy of Management Executive, 3*(1), 11-16.

Agger, A. (2010). Involving citizens in sustainable development: evidence of new forms of participation in the Danish Agenda 21 schemes. *Local Environment: The International Journal of Justice and Sustainability, 15*(6), 541-552.

Agriculture Land Commission. (n.d.). Rural Zone, A2 Retrieved 12 December 2011, from http://www.alc.gov.bc.ca

Amanda, S. (2011). The transition town network: A review of current evolutions and renaissance. *Social Movement Studies, 10*(1), 99-105.

Arkin, L. (1996). Sustainability and sustainable communities, or, 'What is an ecovillage anyway?'. *Communities: Journal of Cooperative Living, 91*, 32-33.

Assadourian, E. (2008). Engaging Communities for a Sustainable World. In T. W. Institute (Ed.), State of the World: Innovations for a Sustainable Economy (pp. 151-246). Retrieved 10 November 2011, from http://www.worldwatch.org/files/pdf/SOW08_chapter_11.pdf.

Bailey, C. A. (2007). *A Guide to Qualitative Field Research* (2nd ed.). Thousand Oaks, CA: Pine Forge Press.

Bainbridge, D. (1986). High performance low cost buildings of straw. *Agriculture, Ecosystem and Environment, 16*, 281-284.

Baker, S. (1997). *The Politics of Sustainable Development : Theory, Policy and Practice Within the European Union*. London ; New York: Routledge.

Baker, S. (2004). Sustainable Development. Retrieved 7 March 2012 , from http://lib.myilibrary.com?ID=40826

Ball, M. (1998). Remarks on visual competence as an integral part of ethnographic fieldwork practice: The visual availability of culture. In J. Prosser (Ed.), *Image-based Research: A Sourcebook for Qualitative Researchers* (pp. 131-147). London: Routledgefalmer.

Bang, J. M. (2005). *Ecovillages: A Practical Guide to Sustainable Communities*. Gabriola Island, B.C: New Society Publishers.

Barlett, P. F., & Chase, G. W. (2004). *Sustainability on Campus : Stories and Strategies for Change*. Cambridge, Mass.: MIT Press.

Baron, S., Field, J., & Schuller, T. (2000). Social capital: A review and critique. In S. Baron, J. Field & T. Schuller (Eds.), *Social Capital: Critical Perspectives.* (pp. 1-38). New York: Oxford University Press.

Barrutia, J., Aguado, I., & Echebarria, C. (2007). Networking for Local Agenda 21 implementation: Learning from experiences with Udaltalde and Udalsarea in the Basque autonomous community. *Geoforum, 38*, 33-48.

Baxter, J. (2010). Case studies in qualitative research. In I. Hay (Ed.), *Qualitative Research Methods in Human Geography* (pp. 81-99). Don Mills: Oxford University Press.

Beatley, T. (1995). Planning and sustainability: The elements of a new paradigm. *Journal of Planning Literature, 9*(4), 383-392.

Beatley, T., & Manning, K. (1997). *The Ecology of Place: Planning for Environment, Economy and Community.* Washington, D.C: Island Press.

Becker, H. S. (1991). Generalizing from case studies. In E. W. Eisner & A. Peshkin (Eds.), *Qualitative Inquiry in Education: The Continuing Debate.* (pp. 233-242). New York, NY: Teachers College Press.

Bedford, T., & Burgess, J. (2001). The focus-group experience. In M. Limb & C. Dwyer (Eds.), *Qualitative Methodologies for Geographers: Issues and Debates* (pp. 121-136). New York: Oxford University Press.

Bell, G. (2005a). *The Permaculture Garden.* Hampshire: Permanent Publications.

Bell, G. (2005b). *The Permaculture Way. Practical Steps to Create a Self-Sustaining World*. Hampshire: Permanent Publications.

Berke, P., & Conroy, M. (2000). Are we planning for sustainable development? An evaluation of 30 comprehensive plans. *APA Journal, 66*(1), 21-33.

Bernard, H. (2006). *Research Methods in Anthropology : Qualitative and Quantitative Approaches*. Lanham, MD: AltaMira Press

Bernstein, R. (2002). It takes an ecovillage: : green learning begins with hands-on community experience. *The Environmental Magazine, 13*(4), 23.

Bhatia, B., & Sharma, D. (2010). Preface. In D. Bhatia & D. Sharma (Eds.), *Sustainable Development. Contemporary Issues and Emerging Perspectives* (pp. xi-xvii). New Delhi: Deep & Deep Publications.

Bijl, R. (2010). Never waste a good crisis: Towards social sustainable development. *Social Indicators Research, 102*(1), 157 -168.

Bingham, W., & Pfeffer, J. (2007). *Natural Timber Frame Homes: Building with Wood, Stone, Clay, and Straw.* Layton: Gibbs Smith, Publisher.

Blackburn, J. (2000). Stakeholders and sustainable development. In J. Schmandt & C. H. Ward (Eds.), *Sustainable Development: The Challenge of Transition.* (pp. 175-203). Campbridge, UK: Campbridge University Press.

Blakely, E., & Green Leigh, N. (2010). *Planning Local Economic Development: Theory and Practice.* (Vol. 4th). Thousand Oaks, CA: Sage.

Borda, J., & Kiss, F. (2011). The environmental policy of EU and sustainable development. *Studia Universitatis "Vasile Goldiş", Seria Ştiinţele Vieţii, 21*(2), 417-420.

Bossel, H. (1999). Indicators for sustainable development: Theory, method, and Applications (Report of the Balaton Group). Canada: International Institute for Sustainable Development.

Braford, T. (2009). Cohousing & ecovillage development. (A strategy for causing a sustainable world). *Synthesis/Regeneration, Fall*(50), 35-38.

Bridger, J. C., & Luloff, A. E. (1999). Toward an interactional approach to sustainable community development. *Journal of Rural Studies, 15*, 377-387.

Bridger, J. C., & Luloff, A. E. (2001). Building the sustainable community: Is social capital the answer? *Sociologicul Inquiry, 71*(4), 458-472.

Brown, B. J., Hanson, M. E., Liverman, D. M., & Merideth, R. W. J. (1987). Global sustainability: Toward Definition. *Environmental Management, 11*(6), 713-719.

Bryman, A., & Teevan, J. J. (2005). *Social Research Methods* (Canadian ed.). Don Mills, ON: Oxford University Press.

Byers, P. (1964). Still photography in the systematic recording and analysis of behavioral data. *Human Organization, 23*, 78-84.

Cabrido, C. A. (1997). Sustainable development indicators: Philippine government initiatives. In B. Moldan, S. Billharz & R. Matravers (Eds.), *Sustainable indicators: A report on the project on indicators of sustainable development* (Vol. 58). New York: John Wiley & Sons.

Cairns, J. (2002). Sustainability and sacred values. *Ethics in Science and Environmental Politics, 2002*, 15-27.

Caldwell, L. K. (1972). *In defense of earth: international protection of the biosphere.* Bloomington: Indiana University Press.

Cameron, J. (2010). Focussing on the Focus Group. In I. Hay (Ed.), *Qualitative Research Methods in Human Geography* (pp. 152-173). Don Mills, ON: Oxford University Press.

Campbell, S. (1996). Green cities, growing cities, just cities? Urban planning and the contradictions of sustainable development. . *Journal of the American Planning Association, 62*(3), 296-312.

Canada Mortgage and Housing Corporation. (n.d.-a). About CMHC Retrieved 4 December 2012, from http://www.cmhc-schl.gc.ca/en/corp/about/index.cfm

Canada Mortgage and Housing Corporation. (n.d.-b). Hydronic Radiant Floor Heating Retrieved 7 March 2012, from http://www.cmhc-schl.gc.ca/en/co/renoho/refash/refash_010.cfm

Canadian Cohousing Network. (n.d.). Community Summary Retrieved 18 March 2012, from http://www.cohousing.ca/summary.htm

Carpini, M., Cook, F., & Jacobs, L. (2004). Public deliberation, discursive participation, and citizen engagement: a review of the empirical literature. *Annual Review of Political Science, 7*(1), 315-344.

Carroll, E. (2010). Twenty-five years in the making: Why sustainable development has eluded the U.N., and how community-driven development offers the solution. *Houston Journal of International Law., 32*(2), 546-585.

Chapin, F., Matson, P., & Mooney, K. (2004). *Principles of Terrestrial Ecosystem Ecology.* Amsterdam: Springer for Science.

Chiras, D. (2000). *The Natural House: A Complete Guide to Healthy, Energy-efficient, Environmental homes.* Vermont: Chelsea Green Publishing.

Chitewere, T., & Taylor, D. (2010). Sustainable living and community building in ecovillage at Ithaca: The challenges of incorporating social justice conserns into the practices of an ecological cohousing community. *Research in Social Problems and Public Policy, 18*, 141-176.

Christian, D. (2003). *Creating a Life Together: Practical Tools to Grow Ecovillages and Intentional Communities*. Gabriola Island: New Society Publishers.

Christian, D. (2007). *Finding Community: How to Join an Ecovillage Or Intentional Community*: Gabriola Island: New Society Publishers.

Christie, I. (2002). Sustainability and spiritual renewal: The challenge of creating a politics of reverence. *Conservation Biology, 16*(6), 1466-1468.

Clark, M. E. (1995). Changes in Euro-American Values Needed for Sustainability. [Article]. *Journal of Social Issues, 51*(4), 63-82.

Clifton Schooley and Assosiates. (n.d.). Benefits of rammed earth Retrieved 12 November 2011, from http://www.rammedearth.info/rammed-earth-benefits.htm#Benefits

Coffman, M., & Umemoto, K. (2010). The triple-bottom-line: Framing of trade-offs in sustainability planning practice. *Environment, Development and Sustainability, 12*(5), 597-610.
Collier, J., Jr. (1967). *Visual Anthropology: Photography as a Research Method.* New York: Holt, Rinehart, Winston.
Connors, P., & McDonald, P. (2010). Transitioning communities: community, participation and the Transition Town movement. *Community Development Journal., 46*(4), 558-572.
Cowichan Tribes. (n.d.). About Retrieved 25 May 2013, from http://www.cowichantribes.com/about
Crews, C. (2002). Earth Plaster and Aliz. In J. Kennedy, M. Smith & C. Wanek (Eds.), *The Art of Natural Building: Design, Construction, Resources.* (pp. 219-224). Gabriola Island: New Society Publishers.
Dale, A. (2007). Sustainable cities: Fact or fiction? *Environments, 35*(1), 101-107.
Dale, A. (2011). The 'agency' of sustainable community development. *Community Development Journal 46*(4), 476-492.
Dale, A., & Newman, L. (2006). Sustainable Community Development, Networks and Resilience. *Environments, 34*(2), 17-28.
Davies, R. (2005). Low carbon communities. *ECOS, 26*(2), 26-29.
Dawson, J. (2006). *Ecovillages: New Frontiers for Sustainability.* Devon: Green Books.
Dernbach, J., & Bernstein, S. (2003). Pursuing sustainable communities: Looking back, looking forward. *The Urban Lawyer, 35*(3), 495-532.
DiChristina, M. (1996). The village green. *Popular Science, 248*(1), 60-64.
Dobson, B. (2004). Focus groups. In S. Becker & A. Bryman (Eds.), *Understanding Research for Social Policy and Practice* (pp. 284-289). Bristol: The Policy Press.
Dresner, S. (2002). *The Principles of Sustainability*. London: Earthscan.
Dunn, B. (2010). *Tracing the path of sustainable development through major international conferences: A brief history and an overview of sustainable development 1964-2002.* Master of Arts, University of North Texas.
Dunn, K. (2010). Interviewing. In I. Hay (Ed.), *Qualitative Research Methods in Human Geography* (pp. 101-139). Don Mills, ON: Oxford University Press.
Economic Development Cowichan. (2008). Cowichan Region Accomodation Study. Duncan, BC.
Edwards, A. (2009). *The Sustainable Revolution: Portrait of a Paradigm Shift.* Gabriola Island: New Society Publishers.
Elizabeth, L. (2002). Making a compelling case for ecological building. In H. Jackson & K. Svensson (Eds.), *Ecovillage Living: Restoring the Earth and Her People* (pp. 40-41). Devon, UK: Green Books.
Endenburg, G. (1998). *Sociocracy: The Organization of Decision-making : "no Objection" as the Principle of Sociocracy*. Delft: Eburon.
Ergas, C. (2010). A Model of Sustainable Living: Collective Identity in an Urban Ecovillage. *Organization Environment, 23*(1), 32-54.
Fellowship for Intentional Communities. (n.d., 27 November 2012). Directory. Communities: O.U.R. Ecovillage Retrieved 21 May 2011, from http://directory.ic.org/5909/OUR_ECOVILLAGE

Fernando, J. (2003). The power of unsustainable development: what is to be done? *Annals of the American Association of Political and Social Sciences, 590*(6-34).
Findlay, I. M. (2012). Editorial: Back to the future? Rebuilding sustainable economies and communities. *Business and Financial Affairs, 1*(1). doi: 10.4172/2167-0234.1000e106
Findlay, I. M., & Russell, J. D. (2005). Aboriginal economic development and the triple bottom line. Towards a sustainable future? *The Journal of Aboriginal Economic Development, 4*(2), 84-99.
Franklin, D. (2004). Why Does Anyone Do This?. *Communities*(125), 26-28.
Friedmann, J., University of California, L. A. G. S. o. A., & Planning, U. (1990). *Empowerment: The Politics of an Alternative Development*. Berkeley: Graduate School of Architecture and Urban Planning, University of California.
Gallagher, B. (2012). Making it Naturally Affordable: O.U.R. Ecovillage Breaks Regulatory Ground. Retrieved 20 February 2013, from http://ourecovillage.org/2012/11/28/making-it-naturally-affordable-o-u-r-ecovillage-breaks-regulatory-ground/
Geis, D., & Kuizmark, T. (1995). Developing sustainable communities: The future is now. *Public Management, 77*(4-13).
GEN. (2005). GEN Regions. Retrieved January, 5, 2011, from http://gen.ecovillage.org/genregions.html
GEN. (2008). Ecovillage Audit. Retrieved December, 10, 2010, from http://gen.ecovillage.org
GEN. (n.d.-a). Development of GEN-Africa 2011. Retrieved 15 July 2012, from http://gen-europe.org/activities/projects/development-of-gen-africa/index.htm
GEN. (n.d.-b). EU Ecovillages Project. Retrieved 23 August 2012, from http://gen-europe.org/activities/projects/ecovillages/index.htm
GEN. (n.d.-c). Find an Ecovillage. Retrieved 18 March 2012, from http://gen.ecovillage.org/ecovillages/find-an-ecovillage.html
GEN. (n.d.-d). United Nations ECOSOC and GEN. Retrieved 6 September 2012, from http://gen.ecovillage.org/activities/unitednationsadvocacy.html
Gibson, K. (2011). The fungible and the sacred: Reimagining the triple bottom line for sustainability. *International Journal of Environmental, Cultural, Economic and Social Sustainability, 7*(4), 133-144.
Gillis, M., & Vincent, J. R. (2000). National self-interest in the pursuit of sustainable development. In J. Schmandt, C. H. Ward & M. Hastings (Eds.), *Sustainable Development. The Challenge of Transition.* (pp. 11-62). Cambridge, UK: Cambridge University Press
Gilman, R. (1991). The eco-village challenge. *Living Together, 29*, 10.
Goss, J. (1996). Focus groups as alternative research practice: experience with transmigrants in Indonesia. *Area, 28*(2), 115-123.
Gough, A. (2009). Towards a Synthesis. In J. Fien, R. Maclean & M. Park (Eds.), *Work, Learning and Sustainable Development: Opportunities and Challenges* (pp. 71-75). New York, NY Springer.
Green, R., & Klinka, K. (1994). A Field Guide for Site Identification and Interpretation for the Vancouver Forest Region.: Ministry of Forests.
Grodach, C. (2011). Barriers to sustainable economic development: The Dallas–Fort Worth experience. *Cities, 28*, 300-309.

Habitat for Humanity. (n.d.). About Habitat for Humanity Retrieved 23 November 2012, from http://www.habitat.org/how
Hale, C. J., Hannum, J. W., & Espelage, D. L. (2005). Social Support and Physical Health: The Importance of Belonging. *Journal of American College Health, 53*(6), 276-284. doi: 10.3200/jach.53.6.276-284
Hales, D., & Prescott-Allen, R. (2002). Flying blind: Assessing progress toward sustainability. In D. C. Esty & M. H. Ivanova (Eds.), *Global Environmental Governance: Options & Opportunities.* New Haven: :Yale School of Forestry & Environmental Studies.
Hancock, T. (1993). Healthy and whole: planning environmentally and socially sustainable communities. *Trames*, 8.
Harper, D. (2002). Talking about pictures: A case for photo elicitation. *Visual Studies, 17*, 13-26.
Harrington, J. (2011). Envisioning sustainable communities: sustainability's application in real-world public policy bears a closer look. *The Public Manager, 40*(2), 67-69.
Hart, M. (1999). *Guide to Sustainable Community Indicators* (2nd ed.). North Andover: Hart Environmental Data.
Harvey, D. (1997). *Justice, Nature and the Geography of Difference*. Malden, MA: Blackwell Publishers.
Heiskanen, E., Johnson, M., Robinson, S., Vadovics, E., & Saastamoinen, M. (2010). Low-carbon communities as a context for individual behavioural change. *Energy Policy, 38*, 7586-7595.
Hempel, L. (2000). Conceptual and analytical challenges in building sustainable communities. In T. Mazmanian & M. Kraft (Eds.), *Toward Sustainable Communities: Transition and Transformation in Environmental Policy*. Cambridge, MA: MIT Press.
Hens, L. (1996). The Rio conference and thereafter. In B. Nath, L. Hens & D. Devuyst (Eds.), *Sustainable Development.* (pp. 81-111). Brussels, Belgium: VUB University Press.
Hens, L., & Nath, B. (2005). *The World Summit on Sustainable Development: The Johannesburg Conference*. Dordrecht: Springer.
Holmgren, D. (2002). *Permaculture: Principles and Pathways Beyond Sustainability*. Hepburn: Holmgren Design Services.
Holzer, S. (2011). *Sepp Holzer's Permaculture. A Practical Guide to Small-Scale, Integrative Farming and Gardening.* Vermont: Chelsea Green Publishing.
Hopkins, R. (2008). *The Transition Handbook: From Oil Dependency to Local Resilience*. Totnes: Green Books.
Hoppe, M. J., Wells, E. A., Morrison, D. M., Gillmore, M. R., & Wilsdon, A. (1995). Using Focus Groups to Discuss Sensitive Topics with Children. *Evaluation Review, 19*(1), 102-114. doi: 10.1177/0193841x9501900105
Hosseini, H., & Kaneko, S. (2012). Causality between pillars of sustainable development: Global stylized facts or regional phenomena? *Ecological Indicators, 14*, 197–201.
International Living Future Institute. (n.d.). Living building Challenge. The Standard. Retrieved 25 October 2011, from https://ilbi.org/lbc/standard
International Union for Conservation of Nature. (1991). *Caring for the Earth: A Strategy for Sustainable Living*. Gland: IUCN.
International Union for Conservation of Nature and Natural Resources. (1980). World conservation strategy: Living resource conservation for sustainable development. . Morges, Switzerland: prepared by the International Union for Conservation of Nature and

National Resources with the United Nations Environmental Programme and the Worlds Wildlife Fund and in collaboration with the Food and Agriculture Organization of the United Nations and the United Nations Educational, Scientific and Cultural Organization. Retrieved 9 April 2011, from http://data.iucn.org/dbtw-wpd/edocs/WCS-004.pdf

Izziv, U. (2011). Local Agenda 21 and sustainable development: The case of Harran, Turkey. *Urbani izziv*, *22*(1), 144-153.

Jackson, H. (2002). Ecovillage design patterns. In H. Jackson & K. Svensson (Eds.), *Ecovillage Living: Restoring the Earth and Her People* (pp. 13-17). Devon, UK: Green Books.

Jackson, H., & Jackson, R. (2004). Global Ecovillage Network History 1990-2004. Retrieved on May 17 2012, from Global Ecovillage Network website: http://www.gaia.org/mediafiles/gaia/resources/HJackson_GEN-History.pdf

Jackson, R., & Svensson, K. (Eds.). (2002). *Ecovillage Living: Restoring the Earth and Her People*. Devon: Green Books.

Jacobsen, R. (2002). Natural building: An alchemical approach. In H. Jackson & K. Svensson (Eds.), *Ecovillage Living: Restoring the Earth and Her People* (pp. 42-43). Devon: Green Books.

Jarvis, H. (2011). Saving space, sharing time: integrated infrastructures of daily life in cohousing. *Environment and Planning*, *43*, 560-577.

Joas, M. (2001). Democratic and Environmental Effects of Local Agenda 21: a comparative analysis over time. *Local Environment*, *6*(2), 213-221.

Johnston, M., Williamson, T., Price, D., Spittlehouse, D., Wellstead, A., & et al. (2006). Adapting Forest Management to the Impacts of Climate Change in Canada. Final report, BIOCAP Research Integration Program Synthesis paper, Queens, Univ., ON.

Johnston, R. J., Gregory, D., Pratt, G., & Watts, M. (Eds.). (2000). *The Dictionary of Human Geography*. (4th ed.). Oxford and Malden: Blackwell Publishers.

Karlsson, S., Dahl, A. L., & Biggs, R. O. (2007). Meeting conceptual challenges. In T. Hak, B. Moldan & A. L. Dahl (Eds.), *Sustainability Indicators: A Scientific Assessment.* (pp. 27-48). Washington: Island Press.

Kasper, D. (2008). Redefining Community in the Ecovillage. *Human Ecology Review*, *15*(1), 12-24.

Katzer, J., Cook, K., & Crouch, W. (1998). *Evaluating Information: A Guide for Users of Social Science Research.*. New York, NY: McGraw Hill.

Kearns, R. A. (2010). Seeing with clarity: Undertaking observational research. In I. Hay (Ed.), *Qualitative Research Methods in Human Geography* (pp. 241-259). Don Mills, ON: Oxford University Press.

Keiner, M. (Ed.). (2006). *Rethinking Sustainability*. Dordrecht: Springer.

Kellner, J. (2011). *Housing Reclaimed: Sustainable Homes for Next to Nothing. Minneapolis*: Consortium Book Sales & Dist.

Kelly, E., & Becker, B. (2000). *Community Planning : An Introduction to the Comprehensive Plan*. Washington, D.C.: Island Press.

Kennedy, J. (2002). Roofs for Natural Buildings In J. Kennedy, M. Smith & C. Wanek (Eds.), *The Art of Natural Building: Design, Construction, Resources.* (pp. 206-211). Gabriola Island: New Society Publishers.

Kilian, I. (2009). Ecovillages: in vitro sustainability. *World Futures, 65*, 365-371.

Kirby, A. (2003). Redefining social and environmental relations at the ecovillage at Ithaca: A case study. *Journal of Environmental Psychology*, *23*, 323-332.
Kitxinger, J., & Barbour, R. (1999). Introduction: the challenge and promise of focus groups. In R. Barbour & J. Kitzinger (Eds.), *Developing Focus Group Research* (pp. 1-21). London: Sage.
Knox, P. L., & Mayer, H. (2009). *Small Town Sustainability : Economic, Social, and Environmental Innovation*. Basel ; Boston: Birkhäuser.
Kolodziejski, A., & Soutar, A. (2004). Eating the view - Permaculture style. *Ecos, 25*(1), 63-69.
Kozak, K. (2012, 12 September 2012). My first full season at O.U.R. Retrieved on 23 November 2012, from http://ourecovillage.org/2012/09/28/my-first-full-season-at-our/
Kozeny, G. (1995). Intentional communities: Lifestyles based on ideals. In I. F. f. I. Communities (Ed.), *Communities Directory: A Guide to Cooperative Living* (pp. 18-24). Rutledge: Fellowship for Intentional Community.
Krapivin, V. F., & Varotsos, C. A. (2007). *Globalization and Sustainable Development: Environmental Agendas*. Berlin: Springer.
Krueger, R., & Gibbs, D. (2007). *The Sustainable Development Paradox : Urban Political Economy in the United States And Europe*. New York, N.Y.: Guilford Press.
Latham, A. (2003). Research, performance, and doing human geography: Some reflections on the diary-photography, diary-interviewed method. *Environment and Planning, 35*, 1993-2017.
Lee, D., & Newby, H. (1983). *The Problem of Sociology: An Introduction to the Discipline*. London: Unwin Hyman.
Lehman, M. (2009). When the oil runs dry. *Australian Geographic, Oct-Dec*(96), 112-117.
Lehtonen, M. (2004). The environmental social interface of sustainable development: Capabilities, social capital, institutions. *Ecological Economics, 49*, 199-214.
Lietaert, M. (2010). Cohousing's relevance to degrowth theories. *Journal of Cleaner Production, 18*(6), 576-580.
Linx BC. (n.d.). Site Selection Guide: Cowichan, British Columbia, Canada. Prepared for the Economic Development Cowichan.
Lockyer, J. (2008). Environmental anthropology engaging permaculture: Moving theory and practice toward sustainability. *Culture & Agriculture 30*(1-2), 47-58.
Longhurst, R. (2003). Semi-structured Interviews and Focus Groups. In N. J. Clifford & G. Valentine (Eds.), *Key Methods in Geography* (pp. 117-132). Thousand Oaks: Sage Publications.
Luke, T. (2005). Neither sustainable nor development: Reconsidering sustainability in development. *Sustainable Development, 13*, 228-238.
Lunt, P., & Livingstone, S. (1996). Rethinking and focus group in media and communications research *Journal of Communication, 46*(2), 79-98.
MacDonald, M. (1998). *Agendas for sustainability: environment and development into the twenty-first century*. London: Routledge.
Magwood, C. (2009). *More Straw Bale Building: A Complete Guide to Designing and Building with Straw*. Gabriola Island: New Society Publishers.
Mapes, J., & Wolch, J. (2011). 'Living green': The promise and pitfalls of new sustainable communities. *Journal of Urban Design, 16*(1), 105-126.

Marinelli, J., & Bierman-Lytle, P. (1995). *Your Natural Home: A Complete Sourcebook and Design Manual for Creating a Healthy, Beautiful, Environmentally Sensitive House.* Boston: Little, Brown and Company.
Mars, R. (2005). *The Basics of Permaculture Design.* Hamoshire: Permanent Publications.
Mauss, M. (2002). *The Gift: The Form and Reason for Exhange in Archaic Societies.* New York: WW Norton & Company.
Maxwell, J. A. (2009). Designing a Qualitative Study. In L. Bickman & D. J. Rog (Eds.), *The SAGE Handbook of Applied Social Research Methods* (2nd ed., pp. 214-253). Thousand Oaks, CA: SAGE Publications Ltd.
Mayer, H., & Knox, P. (2006). Slow cities: sustainable places in a fast world. *Journal of Urban Affairs, 28*(4), 321–334.
Mazmanian, D., & Kraft, M. (1999). *Toward Sustainable Communities: Transition and Transformations in Environmental Policy*. Cambridge, MA: MIT Press.
McCosh, B. M. C. (2001). *Can nature ever really be our home? Ecovillage realities in British Columbia and Ontario.* M.Pl. MQ63337, Queen's University at Kingston (Canada), Canada. Retrieved on 10 May 2011, from http://cyber.usask.ca/login?url=http://search.proquest.com/docview/304733368?accountid=14739 ProQuest Dissertations & Theses (PQDT) database.
McGillivray, B. (2000). *Geography of British Columbia*. Vancouver. BC: UBC Press.
McIntyre, L. (2005). *Need to Know: Social Science Research Methods.* New York: McGraw-Hill.
McManus, B. (2010). An Integral Framework for Permaculture. *Journal of Sustainable Development, 3*(3), 162-174.
Meister, M., & Japp, P. M. (1998). Sustainable development and the global economy: Rhetorical implications for improving the quality of life. *Communication Research, 25*(4), 399-421.
Mercer, D., & Jotkowitz, B. (2000). Local Agenda 21 and Barriers to Sustainability at the Local Government Level in Victoria, Australia. *Australian Geographer, 31*(2), 163–181.
Middlemiss, L. (2008). Influencing individual sustainability: A review of the evidence on the role of community-based organisations. *International Journal of Environment and Sustainable Development 7*(1), 78–93.
Middlemiss, L., & Parrish, B. (2010). Building capacity for low-carbon communities: The role of grassroots initiatives. *Energy Policy, 38*, 7559-7566.
Middleton, N., & O'Keefe, P. (2003). *Rio plus ten*. London: Pluto Press.
Miller, J., & Spoolman, S. E. (2008). *Living in the Environment: Concepts, Connections, and Solutions.* Belmont, CA: Brooks/Cole.
Moffat, I. (1996). *Sustainable Development: Principles, Analysis and Policies*. New York: The Parthenon Publishing Group.
Mogen, E. (2006). Permaculture: Origins, philosophy and goals. *HORTSCIENCE 41*(4), 933-933.
Mollison, B. (n.d.). About Permaculture Retrieved 12 February 2011, from http://www.permaculture.net
Mollison, B., & Holmgren, D. (1990). *Permaculture One: A Perennial Agricultural System for Human Settlements*. Bath: Eco-Logic Books.
Morehouse, W. (1997). *Building Sustainable Communities: Tools and Concepts for Self-Reliant Economic Change*. New York: The Bootstrap Press.

Mulder, K., Costanza, R., & Erickson, J. (2006). The contribution of built, human, social and natural capital to quality of life in intentional and unintentional communities. *Ecological Economics, 59*, 13-23.
Natural Builders Northeast. (n.d.). Other natural wall systems Retrieved 8 November 2011, from http://www.nbne.org/natbuild/owalls.php
Natural Resources Canada. (8 November 2011). Seismic zones in Western Canada Retrieved 12 December 2011, from http://www.earthquakescanada.nrcan.gc.ca/zones/westcan-eng.php
Newby, H. (1999). Sustainable local economic development: a new agenda for action? *Local Environment, 4*(1), 67-72.
Newman, L., & Dale, A. (2005). The role of agency in sustainable local community development. *Local Environment, 10*(5), 477-486.
Norberg-Hodge, H. (2002). Why Ecovillages? *The Ecologist, 32*(1), 38.
Nozick, M. (1999). Sustainable development begins at home: Community solutions to global problems. In J. Pierce & A. Dale (Eds.), *Communities, Development, and Sustainability across Canada* (pp. 3-23). Vancouver: UBC Press.
O'Leary, Z. (2004). *The essential guide to doing research*. London: SAGE
O.U.R. Ecovillage. (2012). O.U.R. Ecovillage Information Handbook & Visitors Guide. Retrieved on 16 October 2012, from O.U.R. Ecovillage official website: http://ourecovillage.org/wp-content/uploads/2012/05/OUR-Ecovillage-Handbook-2012-web.pdf
O.U.R. Ecovillage official website. (n.d.-a). Courses and Events. Retrieved 27 May 2012, from http://ourecovillage.org/courses-events/
O.U.R. Ecovillage official website. (n.d.-b). Governance. Retrieved 14 April 2012, from http://ourecovillage.org/about/organization/governance/
O.U.R. Ecovillage official website. (n.d.-c). History. Retrieved 11 November 2011, from http://ourecovillage.org/about/our-history-and-development/
O.U.R. Ecovillage official website. (n.d.-d). O.U.R. Ecovillage Cooperative. Retrieved 10 May 2012, from http://ourecovillage.org/about/organization/our-ecovillage-co-operative/
O.U.R. Ecovillage official website. (n.d.-e). O.U.R. Rezoning Work. Retrieved 15 December 2011, from http://ourecovillage.org/about/projects-research/our-rezoning-work/
O.U.R. Ecovillage official website. (n.d.-f). OUR Policies. Retrieved 14 May 2012, from http://ourecovillage.org/about/organization/our-policies/#food
O.U.R. Ecovillage official website. (n.d.-g). Overview of Sustainable Land Use Design. Retrieved 9 March 2011, from http://ourecovillage.org/about/projects-research/our-rezoning-work/
Orr, D. (1994). *Earth in mind: on education, environment, and the human prospect. Washington, DC*: Island Press.
Orr, D. (2002). Four challenges of sustainability. *Conservation Biology, 16*, 1457-1460.
Owen, A. (2008). Trust, cooperation, and implementation of sustainability programs: The case of Local Agenda 21. *Ecological Economics 68*(1-2), 259-272.
Pargament, K. (2008). The Sacred Character of Community Life. *American Journal of Community Psychology, 41*(1-2), 22-34. doi: 10.1007/s10464-007-9150-z
Parris, T. M. (2003). Toward a sustainability transition: the international consensus. *Environment and Planning, 45*(Jan/Feb), 12-22.

Patton, M. Q. (1990). *Qualitative Evaluation and Research Methods* (2nd ed.). Thousand Oaks, California: Sage Publications.
Peak Moment (Producer). (23 May 2012). Awakening the Village Heart and Mind. Interview with Brandy Gallagher. Retrieved 12 December 2012, from https://www.youtube.com/watch?v=sNZT08QLzQI
Pellizzoni, L. (2001). The myth of the best argument: power, deliberation and reason. *British Journal of Sociology, 52*(1), 59-86.
Pink, S. (2008). Sense and sustainability: The case of the Slow City movement. *Local Environment, 13*(2), 95-106.
Pink, S. (2009). Urban social movements and small places: Slow Cities as sites of activism. *City, 13*(4), 451-465.
Popovic Larsen, O. (2008). *Reciprocal Frame Architecture*. Oxford: Architectural Press.
Putnam, R. (1995). Bowling alone: America's declining social capital. *Journal of Democracy, 6*(1), 65-78.
Rauschmayer, F., Omann, I., & Fruhmann, J. (2011). Needs, capabilities and quality of life. In F. Rauschmayer, I. Omann & J. Fruhmann (Eds.), *Sustainable Development. Capabilities, needs, and well-being* (pp. 1-24). New York, NY: Taylor & Francis.
Raven, R., Heiskanen, E., Lovio, R., Hodson, M., & Brohmann, B. (2008). The contribution of local experiments and negotiation processes to field-level learning in emerging (niche) technologies: meta-analysis of 27 new energy projects in Europe. *Bulletin of Science Technology Society. , 28*(6), 464–477.
Rees, W. E., & Roseland, M. (1991). Sustainable communities: Planning for the 21st century. *Plan Canada, 31*(3), 15-23.
Richardson, N. (1993). *Making our communities sustainable: the central issue is will.* Toronto: Govemment of Ontario.
Ridout, R., & Witting, C. (1968). *English Proverbs Explained* . New York: Barnes and Noble.
Robinson, J. B., & Tinker, J. (1997). Reconciling Ecological, Economic and Social Imperatives: a new conceptual framework. In T. Schrecker (Ed.), *Surviving Globalism: Social and Environmental Dimensions*. London: Macmillan.
Rogers, M., & Ryan, R. (2001). The triple bottom line for sustainable community development. *Local Environment: The International Journal of Justice and Sustainability., 6*(3), 279 - 289.
Romano, P. (2000). Sustainable development: a strategy that reflects the effects of globalization on the international power structure. *Houston Journal of International Law., 23*(1), 91.
Romme, G. (1997). Work, authority and participation: the scenario of circular organizing. *Journal of Organizational Change Management, 10* (2), 156-166.
Romme, G., & Endenburg, G. (2006). Construction principles and design rules in the case of circular design. *Organization Science, 17*(2), 287-297.
Roseland. (2000a). *Sustainable community development : integrating environmental, economic, and social objectives*. Oxford: Pergamon.
Roseland. (2000b). Sustainable community development: integrating environmental, economic, and social objectives. *Progress in Planning, 54*, 73-132.
Roseland, M. (1992). *Toward sustainable communities: a planning framework for municipal and local governments*. Vancouver: University of British Columbia.

Sachs, I. (1999). Social sustainability and whole development. In E. Becker & T. Jahn (Eds.), *Sustainability and the Social Sciences.* (pp. 25-36). New York: Zed Books and UNESCO.

Sahlins, M. D. (1972). *Stone Age Economics. Hawthorn, NY*: Aldine De Grutyre.

Sauinier, R. E. (2000). Perceptions of Sustainability: A Framework for the 21st Century. *Prepared for the Inter-American Council for Integral Development, Organization of American States*. Retrieved 14 March 2012, from http://www.oas.org/dsd/publications/Unit/oea83e/begin.htm

Saunier, R. (1999). Sustainable development, global sustainability. . *Environmental Geology, Encyclopedia of Earth Sciences Series.*, 587-592.

Schwartz, D. (1989). Visual ethnography: Using photography in qualitative research. *Qualitative Sociology, 12*(2), 119-154.

Scott, J. (1990). *A matter of record: documentary sources in social research*. Cambridge: Polity Press.

Sevier, L., Henderson, M., & Naidu, N. (2008). Ecovillages: A model life? *Ecologist, 38*(4), 36-41.

Shepherd, D. A., Kuskova, V., & Patzelt, H. (2009). Measuring the values that underlie sustainable development: The development of a valid scale. *Journal of Economic Psychology, 30*(2), 246-256. doi: 10.1016/j.joep.2008.08.003

Silberstein, J., & Maser, C. (2000). *Land-use planning for sustainable development*. London: Lewis Publishers.

Simon-Brown, V., & Maser, C. (2010). Taking pesonal action toward sustainability. In O. Ukaga, C. Maser & M. Reichenbach (Eds.), *Sustainable Development. Principles, Frameworks, and Case Studies*. Boca Raton, FL: CRC Press.

Singla, S., & Bansal, A. (2010). Environmental integration: A step towards sustainable development. In D. Bhatia & D. Sharma (Eds.), *Sustainable Development. Contemporary Issues and Emerging Perspectives* (pp. 157-165). New Delhi: Deep & Deep Publications.

Sinton, J. (2010). Using Lean thinking approaches to speed sustainable development. In O. Ukaga, C. Maser & M. Reichenbach (Eds.), *Sustainable Development. Principles, Frameworks, and Case Studies* (pp. 115-135). Boca Raton, FL: CRC Press.

Siracusa, G., La Rosa, A., Palma, P., & La Mola, E. (2008). New frontiers for sustainability: emergy evaluation of an eco-village. *Environment, Development and Sustainability, 10*(6), 845-855. doi: 10.1007/s10668-007-9087-2

Smith, M. (2002). Foundations for Natural Buildings. In J. Kennedy, M. Smith & C. Wanek (Eds.), *The Art of Natural Building: Design, Construction, Resources.* (pp. 105-111). Gabriola Island: New Society Publishers.

Smith, M. (2006). Cob building, ancient and modern. In J. Kennedy, M. Smith & C. Wanek (Eds.), *The Art of Natural Building: Design, Construction, Resources.* Gabriola Island: New Society Publishers.

Sneddona, C., Howarthb, R., & Norgaardc, R. (2006). Sustainable development in a post-Brundtland world. *Ecological Economics, 57*, 253–268.

Snyder, P. (2002). Building a LIving and Learning Center. In H. Jackson & K. Svensson (Eds.), *Ecovillage Living: Restoring the Earth and Her People* (pp. 98-99). Devon: Green Books.

Steen, B., & Steen, A. (2002). Earthen Floors. In J. Kennedy, M. Smith & C. Wanek (Eds.), *The Art of Natural Building: Design, Construction, Resources.* (pp. 113-117). Gabriola Island: New Society Publishers.

Stewart, D. W., Shamdasani, P. N., & Rook, D. W. (2009). Group Depth Interviews: Focus Group Research. In L. Bickman & D. J. Rog (Eds.), *The Sage Handbook of Applied Social Research Methods* (pp. 589-617). Thousand Oaks, CA: SAGE Publications.

Stiglitz, J., Sen, A., & Fitoussi, J.-P. P., 14 sept 2009. (www.stiglitz-sen-fitoussi.fr). (2009). Report of the measurement of economic performance and social progress. Paris: Commission on the measurement of economic performance and social progress.

Sullivan, R. (2008). Inside Ecovillage Life. *Ecos, 145*, 22-25.

Svensson, K. (2002a). Ecovillages for disaster reconstruction. In H. Jackson & K. Svensoon (Eds.), *Ecovillage Living. Restoring the Earth and Her People* (pp. 153-155). Devon: Greeen Books.

Svensson, K. (2002b). What is an Ecovillage? In H. Jackson & K. Svensson (Eds.), *Ecovillage Living: Restoring the Earth and Her People* (pp. 10-12). Devon: Green Books.

Tandon, B., & Garg, A. (2010). Inclusive sustainable development. In D. Bhatia & D. Sharma (Eds.), *Sustainable Development. Contemporary Issues and Emerging Perspectives* (pp. 25-35). New Delhi: Deep & Deep Publications.

Tarakeshwar, N., Aaron, B. S., Pargament, K. I., & Mahoney, A. (2001). The Sanctification of Nature and Theological Conservatism: A Study of Opposing Religious Correlates of Environmentalism. *Review of Religious Research, 42*(4), 387-404. doi: 10.2307/3512131

The Fuller Center for Housing. (n.d.). About us Retrieved 23 November 2012, from http://fullercenter.org/about

The Global Development Research Center. (n.d.). A selection of institutions working on Local Agenda 21 and related issues in the Asia-Pacific Region Retrieved 12 March 2011, from http://www.gdrc.org/uem/la21/la21-links.html

The Global Sociocratic Center. (n.d.). What is the Sociocratic Circle-organization Method? , Retrieved 10 June 2012, from http://www.sociocracy.biz/

The Phrase Finder. (n.d.). English Proverbs Retrieved 5 January 2013, from http://www.phrases.org.uk/meanings/proverbs.html

Thompson, C. J., & Coskuner-Balli, G. (2007). Enchanting ethical consumerism: The case of community supported agriculture. *Journal of Consumer Culture, 7*(3), 275-303.

Trainer, T. (1995). *The Conserver Society: Alternatives for Sustainability*. London: Zen Books.

Trainer, T. (2000). The global ecovillage movement: The simpler way for a sustainable society. *Social Alternatives, 19*(3), 19-24.

Trainer, T. (2005). Social responsibility: The most important, and neglected, problem of all? *International Journal of Social Economics, 32*(8), 682-703.

Transtition Network. (n.d.). Transition Initiatives Directory Retrieved 18 March 2012, from http://www.transitionnetwork.org/initiatives

Udani, S. (2005). Electrical recycling exposes workers to toxic chemicals. *The Lancet, 366*(9501), 1913-1914.

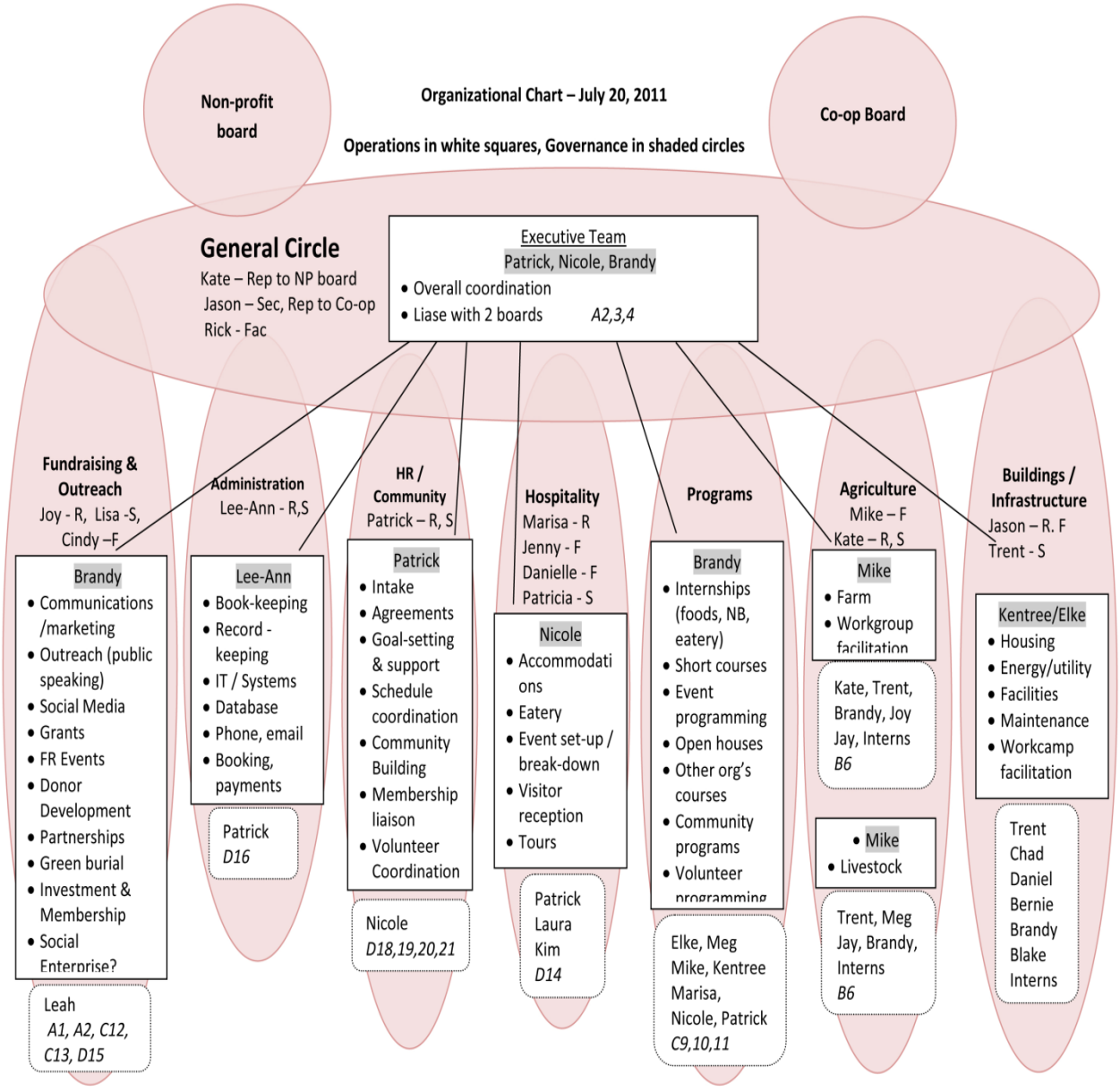
Ukaga, O., Maser, C., & Reichenbach, M. (Eds.). (2010). *Sustainable Development. Principles, Frameworks, and Case Studies*. Boca Raton, FL: CRC Press.

United Nations. (1992). *Agenda 21*. Paper presented at the United Nations Conference on Environment and Development, Rio de Janeiro.

Vallance, S., Perkins, H., Dixon, J., & Baas, S. (2011). What is social sustainability? A clarification of concepts. *Geoforum, 42*, 342–348.
Verma, S. (2010). United Nations' indicators of sustainable development. In D. Bhatia & D. Sharma (Eds.), *Sustainable Development. Contemporary Issues and Emerging Perspectives*. New Delhi: Deep & Deep Publications.
Veteto, J., & Lockyer, J. (2008). Environmental anthropology engaging permaculture: Moving theory and practice toward sustainability. *Culture and Agriculture, 30*(1, 2), 47-58.
Wackernagel, M., & Rees, W. (1996). *Our Ecological Footprint: Reducing Human Impact on the Earth.* Gabriola Island, BC: New Society Publishers.
Walker, L. (2005). *EcoVillage at Ithaca: Pioneering a Sustainable Culture. Minneapolis*: Consortium Book Sales & Dist.
Walker, L. (2010). *Choosing a Sustainable Future. Ideas and Inspiration from Ithaca, NY.* Gabriola Island: New Society Publishers.
Weaver, P., & Rotmans, J. (2006). Integrated sustainability assessment: what is it, why do it and how? *International Journal of Environment and Sustainable Development, 1*(4), 284-303.
Weil, M. (1997). Sustainable development: The challenge for community development. *Community Development Journal, 32*(3), 210-222.
Wheeler, S. (1997). *Planning for Sustainability: Towards More Liveable and Ecological Communities.* New York: Routledge.
Wheeler, S. (2004). Planning for sustainability creating livable, equitable, and ecological communities. Oxon: Routledge.
Whitefield, P. (1993). *Permaculture in a Nutshell.* Hampshire: Permanent Publications.
Whitefield, P. (2005). *The Earth Care Manual: A Permaculture Handbook for Britain & Other Temperate Climates.* Hampshire: Permanent Publications.
Williams, J. (2005). Designing neighbourhoods for social interaction: The case of cohousing. *Journal of Urban Design., 10*(2), 195-227.
Wilson, F., & Smith, W. (1970). *The Oxford dictionary of English proverbs*. Oxford: Clarendon P.
Wong, M. H., Wu, S. C., Deng, W. J., Yu, X. Z., Luo, Q., Leung, A. O. W., . . . Wong, A. S. (2007). Export of toxic chemicals – A review of the case of uncontrolled electronic-waste recycling. *Environmental Pollution*, *149*(2), 131-140. doi: 10.1016/j.envpol.2007.01.044
World Commission on Environment and Development. (1987). Our Common Future. Retrieved 11 December 2010, from http://www.un-documents.net/wced-ocf.htm
Yanarella, E., & Levine, R. (1992). Does sustainable development lead to sustainability? *Futures, October*, 759-574.
Yang, L., Zhou, J., & Yan, X. (2010). *Environmental strategies analysis of cohousing based on ecological footprint.* Paper presented at the 2010 International Conference on Mechanic Automation and Control Engineering, Wuhan.
Yin, R. (2003). *Applications of case study research*. Thousand Oaks: Sage Publications.
Yin, R. (2009). *Case study research : design and methods*. Los Angeles, CA: Sage Publications
Young, I. (1990). *Justice and the Politics of Difference*. Princeton: The Princeton University Press.
Zamchevska, I. (2012). *Opportunities and Challenges for Sustainable Development: A Case Study of O.U.R. Ecovillage, British Columbia, Canada.* Paper presented at the International Symposium on Society and Resource Management, Edmonton, Canada.

Поселения.ру. (n.d.). Поселения по регионам Retrieved 5 December 2012, from http://www.poselenia.ru/ (Translation: Communities. ru. Communities by region)

APENDIX A: Organizational Chart of O.U.R. Ecovillage on July 20, 2011.
Source: O.U.R. Ecovillage documents



APPENDIX B: Field Notes Form. Sample.

Topic	Date of observation	Location of observation	Description of observation
Shelter provision			
Human settlement management			
Land-use planning and management			
Infrastructure			
Energy and transport systems			
Planning and management in disaster-prone areas			
Constructive industry activities			
Human resource development and capacity-building			
Other observations			

APPENDIX C: Interview Guide

1. Shelter provision:
   1.1 How does the community ensure there is adequate shelter for all? (Probe: Please describe any policies, procedures, other approaches that are in place)
   1.2 What are the main challenges in providing safe and healthy shelter to the residents of this community?
   1.3 What specifically is being done to address the housing challenges you just described?

2. Human settlement management:
   2.1 What approach does O.U.R. Ecovillage take to community decision making? (Probe: Please describe main formal and informal decision-making forums or procedures)
   2.2 Does O.U.R. Ecovillage intend to be self-sufficient? (Probe: If so, in what way?)
   2.3 Has self-sufficiency already been achieved? (Probe: If so, in what way?)
   2.4 Does O.U.R. Ecovillage cooperate with other groups, organizations, and networks to promote sustainable development?
   2.5 What is needed to improve ecovillage management?

3. Land-use planning and management:
   3.1 Does O.U.R. Ecovillage have a land-use plan? (Probe: If so, please briefly describe.)
   3.2 How are land-use decisions made in this community?
   3.3 How is the land managed, and by whom?
   3.4 What modifications are needed to improve your current land-use planning and management practices?

4. Integrated provision of environmental infrastructure: (water, sanitation, drainage and solid-waste management)
   4.1 Please list as many of the ‘sustainable’ maintenance practices used in the operation of O.U.R. Ecovillage as you can (e.g. waste management, water, sanitation, drainage,

solid-waste management)? (Probe: Can you describe (the maintenance practice) in greater detail?)

4.2 Are practices used adapted to local conditions? (Probe: Examples might be topography, soil type, water resources, wildlife in the area, natural vegetation types, etc.)

4.3 Are there any plans to integrate other environmental infrastructure in the ecovillage?

4.4 What improvements would you recommend regarding infrastructure used in the ecovillage?

5. Energy and transport systems:

5.1 What are the primary source(s) of energy used in the ecovillage? (Probe: Please describe why these were selected.)

5.2 Is any energy generated within the Ecovillage?

5.3 What are the primary transport mode(s) used inside the ecovillage? (Probe: Please describe why these were selected.)

5.4 Do you have any energy or transport policies in the community? (If so, please describe)

5.5 What improvements would you recommend regarding energy or transport systems used in the ecovillage?

6. Human settlement planning and management in disaster-prone areas:

6.1 Was proximity to hazardous prone areas/industries considered in the site selection criteria for this Ecovillage?

6.2 Was any disaster avoidance approach used during the construction stage of the ecovillage? (Probe: If so, please describe.)

6.3 Has a disaster response plan or post-disaster reconstruction plan been developed by O.U.R. Ecovillage?

7. About promoting sustainable constructive industry activities:

7.1 Please describe any environmentally friendly or sustainable construction methods or materials used to build O.U.R. Ecovillage (Probe: Examples could include construction techniques, building materials design, planning)

7.2 Are there any plans to implement other sustainable construction practices or materials in the ecovillage?

7.3 What improvements would you recommend regarding sustainable construction practices used in the ecovillage?

8. Human resource development and capacity-building:

8.1 Does the internal organization of O.U.R. Ecovillage support and encourage the participation of all members in community development, particularly women, children, youth, and indigenous people? (Probe: Please describe.)

8.2 Does O.U.R. Ecovillage provide to its members any training related to social, economic, or environmental aspects of community development? (Probe: If so, please describe.)

8.3 What else can be done or is being planned by the ecovillage to promote human resource development and capacity-building?

APPENDIX D: Fieldwork Schedule

(29 July – 12 September 2011)

Schedule of attended events and meetings:
Permaculture Design Certificate Course: 29 July – 14 August
GMO talk: 8 August
Invisible infrastructures Presentation: 12 August
Council meetings: 1, 15, 29 August; 5 September
Women's circles: 18 August; 1, 8 September
Appreciation walk: 19 August
Site tour: 27 August
GMO discussion: 31 August
2012 Programming meeting: 1 September
Deconstructing dinner: 1 September
Builders' meeting: 6 September
Hospitality meeting: 6 September
Fundraising and outreach meeting: 7 September
"Organic gardener" 6 month internship meeting: 8 September

Interview Schedule (pseudonyms are used instead of real names):
Victor – 22 August
Anna – 23 August
Joy – 24 August
Mandy– 25 August
Tyra - 26 August
Rachel – 1 September
Jeff – 1 September
Brandy – 4 September
Neil – 5 September
Olivia – 6 September
Pam – 7 September
Sandy - 9 September

Focus Group – 9 September

APPENDIX E: Participant Consent Form for Semi-Structured Interviews

UNIVERSITY OF SASKATCHEWAN

School of Environment and Sustainability
117 Science Place, Room 306, Kirk Hall,
Saskatoon, SK S7N 5C8 Canada
Telephone: (306) 966-8462
Facsimile: (306) 966-2298

PARTICIPANT CONSENT FORM – Semi-structured interviews

"Sustainable Development Principles in an Ecovillage Setting:
The Case Study of O.U.R. Ecovillage, British Columbia, Canada."

Please read this letter carefully, and feel free to ask any questions you might have.

Research Supervisor: Dr. Aloysius Newenham-Kahindi, Edwards School of Business, and School of Environment & Sustainability, University of Saskatchewan, Saskatoon, SK, S7N 5C8, Tel: (306) 996-2894, E-mail: newenham-kahindi@edwards.usask.ca

Student Researcher: Iryna Zamchevska, School of Environment and Sustainability, University of Saskatchewan, Saskatoon, SK, S7N 5C8, Tel: (306) 966-8462, E-mail: irz545@mail.usask.ca

Purpose and Procedure: The purpose of this study is to improve understanding of how economic, social, and environmental principles of sustainable development, presented in Agenda 21, have been implemented in the structure, decision-making process, and practices of O.U.R. Ecovillage, as well as to characterize as fully as possible the overall ecovillage approach to sustainable development.

Semi-structured one-on-one interviews will be conducted with each of the participants. Each interview will take approximately from 1 to 2 hours, and will be digitally recorded so as to facilitate creation of a transcript and further data analysis. Results of the interviews will be aggregated and used to create a comprehensive picture of sustainable practices used in an ecovillage setting. Current study might be a catalyst for future research on ecovillages that will lead to official recognition of the concept as well as development of the universal framework and guidelines for ecovillage development.

Potential Benefits: The research will introduce sustainable practices that may be applied by other communities, neighborhoods and households interested in sustainable development.

Potential Risks: There are no personal risks to participating in this study. Your affiliation, but not your name, may be identified in research reports in order to lend credibility to the research. Given the particular nature of your position in the ecovillage, it may be possible to identify specific individuals based solely on the town affiliation. However, you are being asked to provide your view on community's practices and, as such, there is minimal personal risk. All data collected for this study will be reported in aggregate form only. Individual responses will not be revealed.

Storage of Data: During the fieldwork data will be stored on the password protected laptop. After the end of the fieldwork all the digital information will be transferred to the portable storage devise. Interview tapes, notes and transcriptions will be stored temporarily on a hard drive (dedicated solely to this study) in the office of the research supervisor, and in the long term on CDs in a locked cabinet of the research supervisor for a minimum of five years and until all publications, conference papers, and research thesis have been produced and disseminated. The research supervisor will be responsible for all data storage and management, and will have access to all data.

Confidentiality: The information you provide to this study will be aggregated with information provided by 10-12 other members of the ecovillage, and used as the basis for the analysis of the sustainable development implication in an ecovillage setting. In addition, the information will be used to

produce reports for publication in scientific journals and may be presented at conferences and/or workshops/meetings. Your personal identity will be kept confidential at all times. You will be identified only by your position. However, because the participants for this study have been selected from a relatively small group of people, some of whom may be known to each other, it is possible that you may be identifiable to other people on the basis of the information you provide. In other words, only aggregate data will be presented in the research results, but confidentiality of your involvement as a participant in this study cannot be guaranteed. If, following completion of your interview, you have any second thoughts about your responses, you can contact me or the research supervisor, who will immediately remove your information from the data set or provide you with an opportunity to review your responses to determine whether you would like to withdraw certain statements from the research.

Right to Withdraw: Your participation is voluntary, and you may withdraw from the study for any reason, at any time without penalty of any sort. You may also refuse to answer specific questions. You can withdraw data from the study within thirty days after the interview; in this case any information that you have contributed will be destroyed or returned at your request. After that time there is a possibility that information have already been disseminated and it may be impossible to withdraw the data collected. Before and after your interview, you will be reminded of your right to withdraw.

Questions: If you have any questions concerning the study, please feel free to ask at any point; you are free to contact me or my research supervisor at the numbers or email address provided above if you have questions at a later time. This study has been approved on ethical grounds by the University of Saskatchewan Behavioural Research Ethics Board in July, 2011. Any questions regarding your rights as a participant may be addressed to that committee through the Ethics Office at (306) 966-2084.

Follow-Up: Reporting of the research findings potentially will be done through publication of one or couple of articles in *Ecology and Society, and Journal of Environmental Planning and Management.* You will also receive a brief written summary of key research findings at the close of the study.

Consent to Participate: I have read and understood the description provided; I have had an opportunity to ask questions and my questions have been answered. I consent to participate in the research project, understanding that I may withdraw my consent at any time. A copy of this Consent Form has been given to me for my records.

_____	_____
(Name of the participant)	(Date)
_____	_____
(Signature of the participant)	(Signature of Researcher)

APPENDIX F: Participant Consent Form for a Focus Group

UNIVERSITY OF SASKATCHEWAN

School of Environment and Sustainability
117 Science Place, Room 306, Kirk Hall,
Saskatoon, SK S7N 5C8 Canada
Telephone: (306) 966-8462
Facsimile: (306) 966-2298

PARTICIPANT CONSENT FORM – Focus group

"Sustainable Development Principles in an Ecovillage Setting:

The Case Study of O.U.R. Ecovillage, British Columbia, Canada."

Please read this letter carefully, and feel free to ask any questions you might have.

Research Supervisor: Dr. Aloysius Newenham-Kahindi, Edwards School of Business, and School of Environment & Sustainability, University of Saskatchewan, Saskatoon, SK, S7N 5C8, Tel: (306) 996-2894, E-mail: newenham-kahindi@edwards.usask.ca

Student Researcher: Iryna Zamchevska, School of Environment and Sustainability, University of Saskatchewan, Saskatoon, SK, S7N 5C8, Tel: (306) 966-8462, E-mail: irz545@mail.usask.ca

Purpose and Procedure: The purpose of this study is to improve understanding of how economic, social, and environmental principles of sustainable development, presented in Agenda 21, have been implemented in the structure, decision-making process, and practices of O.U.R. Ecovillage, as well as to characterize as fully as possible the overall ecovillage approach to sustainable development.

Semi-structured one-on-one interviews will be conducted with each of the participants. Each interview will take approximately from 1 to 2 hours, and will be digitally recorded so as to facilitate creation of a transcript and further data analysis. Results of the interviews will be aggregated and used to create a comprehensive picture of sustainable practices used in an ecovillage setting. Current study might be a catalyst for future research on ecovillages that will lead to official recognition of the concept as well as development of the universal framework and guidelines for ecovillage development.

Potential Benefits: The research will introduce sustainable practices that may be applied by other communities, neighborhoods and households interested in sustainable development.

Potential Risks: There are no personal risks to participating in this study. Your affiliation, but not your name, may be identified in research reports in order to lend credibility to the research. Given the particular nature of your position in the ecovillage, it may be possible to identify specific individuals based solely on the town affiliation. However, you are being asked to provide your view on community's practices and, as such, there is minimal personal risk. All data collected for this study will be reported in aggregate form only. Individual responses will not be revealed.

Storage of Data: During the fieldwork data will be stored on the password protected laptop. After the end of the fieldwork all the digital information will be transferred to the portable storage devise. Interview tapes, notes and transcriptions will be stored temporarily on a hard drive (dedicated solely to this study) in the office of the research supervisor, and in the long term on CDs in a locked cabinet of the research supervisor for a minimum of five years and until all publications, conference papers, and research thesis have been produced and disseminated. The research supervisor will be responsible for all data storage and management, and will have access to all data.

Confidentiality: The information you provide to this study will be aggregated with information provided by 10-12 other members of the ecovillage, and used as the basis for the analysis of the sustainable development implication in an ecovillage setting. In addition, the information will be used to produce reports for publication in scientific journals and may be presented at conferences and/or workshops/meetings. Your name will not appear in any report, conference presentation or publication about this study. A pseudonym will be assigned to any quotation that will be used. You will be identified only by your position. However, because the participants for this study have been selected from a relatively small group of people, some of whom may be known to each other, it is possible that you may be identifiable to other people on the basis of the information you provide. In other words, only aggregate data will be presented in the research results, but confidentiality of your involvement as a participant in this study cannot be guaranteed. If, following completion of the focus group, you have any second thoughts about your responses, you can contact me or the research supervisor, who will immediately remove your information from the data set or provide you with an opportunity to review your responses to determine whether you would like to withdraw certain statements from the research.

Right to Withdraw: Your participation is voluntary, and you may withdraw from the study for any reason, at any time without penalty of any sort. You may also refuse to answer specific questions. You can withdraw data from the study within thirty days after the focus group session; in this case any information that you have contributed will be destroyed or returned at your request. After that time there is a possibility that information have already been disseminated and it may be impossible to withdraw the data collected. Before and after the focus group session, you will be reminded of your right to withdraw.

Questions: If you have any questions concerning the study, please feel free to ask at any point; you are free to contact me or my research supervisor at the numbers or email address provided above if you have questions at a later time. This study has been approved on ethical grounds by the University of Saskatchewan Behavioural Research Ethics Board in July, 2011. Any questions regarding your rights as a participant may be addressed to that committee through the Ethics Office at (306) 966-2084.

Follow-Up: Reporting of the research findings potentially will be done through publication of one or couple of articles in *Ecology and Society, and Journal of Environmental Planning and Management.* You will also receive a brief written summary of key research findings at the close of the study.

Consent to Participate: I have read and understood the description provided; I have had an opportunity to ask questions and my questions have been answered. I consent to participate in the research project, understanding that I may withdraw my consent at any time. A copy of this Consent Form has been given to me for my records.

_____	_____
(Name of the participant)	(Date)
_____	_____
(Signature of the participant)	(Signature of Researcher)